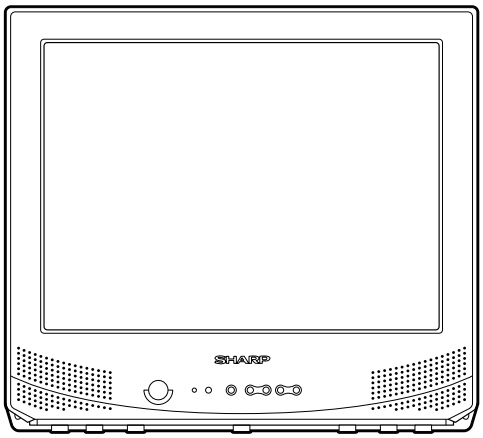
SHARP® SERVICE MANUAL

SEBD21HT15S00
Issued: 25th July 2001

GA-1E CHASSIS



PAL B/G SYSTEM COLOUR TELEVISION

MODELS 21HT-15S DE/DES/ES/ESS/IT/ITS

In the interests of user safety (required by safety regulations in some countries) the set should restored to its original condition and only parts identical to those specified should be used.

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SHARP CORPORATION

This document has been published to be used for after sales service only.

SERVICE MANUAL UPDATE LOG SHEET

Technical Report No. Technical Bulletin No.	Cause / Solution	Part No.	Page No.	Application Data /Serial No.

Use this page to keep any special servicing information as Technical Report (Bulletin), Technical Information, etc.
If only part number changes are required, just change part number directly the part number in the Parts Listing Section.
If you need more information, please refer to the Technical Report (Bulletin).

ELECTRICAL SPECIFICATIONS

•Power Input .....220V-240 Volts AC 50Hz

•Power Consumption

Normal Operation.....43W
Stand-by Operation.....3W

•Audio Power Output Rating .....4W (MPO)

Speaker.....16Ω 4W, 9 x 5 cm, 1pc

Convergence.....Self Converging System
Focus.....Bi-Potencial Electrostatic
Sweep Deflection.....Magnetic

•Picture Intermediate Frecuency.....38.9MHz

•Sound Carrier Trap.....33.4MHz

•Adjacent Sound Carrier Trap.....40.4MHz

•Adjacent Picture Carrier Trap.....31.9MHz

•Aerial Input Impedance

VHF/UHF.....75 ohm Unbalanced

•Tuning Ranges .....48.25MHz thru 855.25 MHz

VHF.....CH02-CH12
S1-S41 (HYPERBAND)
UHF.....CH21-CH69

•White Level

Set the brightness control, with no signal connected, so that the CRT cathode current is 600mA. The maximum correction applied to each cathode current to achieve a screen temperature of 8900 degrees K-3 MPCD should not exceed 15% of its original value.

MODEL	X	Y	Screen temperature
21HT-15SES	0.290 ± 0.015	0.284 ± 0.015	8900º K-20 MPCD
21HT-15SDE 21HT-15SIT	0.290 ± 0.015	0.300 ± 0.015	8550º K+1 MPCD

Specifications are subject to change without prior notice.

MODEL DESTINATION & DIFFERENCES:

21HT-15SDE : Germany, Austria, Turkey, Netherlands. Particular Operation Manual.
21HT-15SDES: Germany, Austria, Turkey, Netherlands. Silver.
21HT-15SES : Spain, Portugal. Particular Operation Manual.
21HT-15SESS: Spain, Portugal. Silver.
21HT-15SIT : Italy. Particular Operation Manual.
21HT-15SITS : Italy. Silver.

WARNING

The chassis in this receiver is partially hot. Use an isolation transformer between the line cord plug and power receptacle, when servicing this chassis.
To prevent electric shock, do not remove cover. No user-serviceable parts inside. Refer servicing to qualified service personnel.

IMPORTANT SERVICING NOTES

Only qualified service personnel are allowed to carry out maintenance and repair of this receiver.

SERVICING OF HIGH VOLTAGE SYSTEM AND CRT

It is important that the static charge is removed from the high voltage system when carrying out work on the receiver. This can be achieved by connecting a 10K resistor (with a suitably insulated lead) from the CRT cavity connector to the CRT ground tag. This must be carried out with the AC supply disconnected from the receiver.

Note the following:

- The CRT in this receiver employs Integral Implosion Protection.
- If the CRT has to be changed it MUST be replaced with the correct type for continued safe working
- DO NOT lift the CRT by its neck.
- When handing the CRT, ensure that shatterproof goggles are worn.
- Ensure that the CRT is discharge before handling.

X-RAY

This receiver is designed to keep any x-ray emission to an absolute minimum. Some fault conditions and servicing procedures may produce potentially hazardous x-ray radiation levels. This is a problem when in close proximity to the receiver for long periods of time. To reduce any risks associated with this, please observe the following precautions:

1. When undertaking any servicing on this chassis, DO NOT increase the EHT to more than 30.5 KV, (at a instantaneous beam current of 1300μA).
2. Ensure that during normal operation the EHT does not exceed 27.5 KV±1.5KV (at a beam current of 1000μA). This level has been preset in the factory. Always check that this level has not been exceeded after carrying out any repair on the receiver.
3. DO NOT replace the CRT with any other type than that specified in the parts listing as this may cause excessive x-ray radiation.

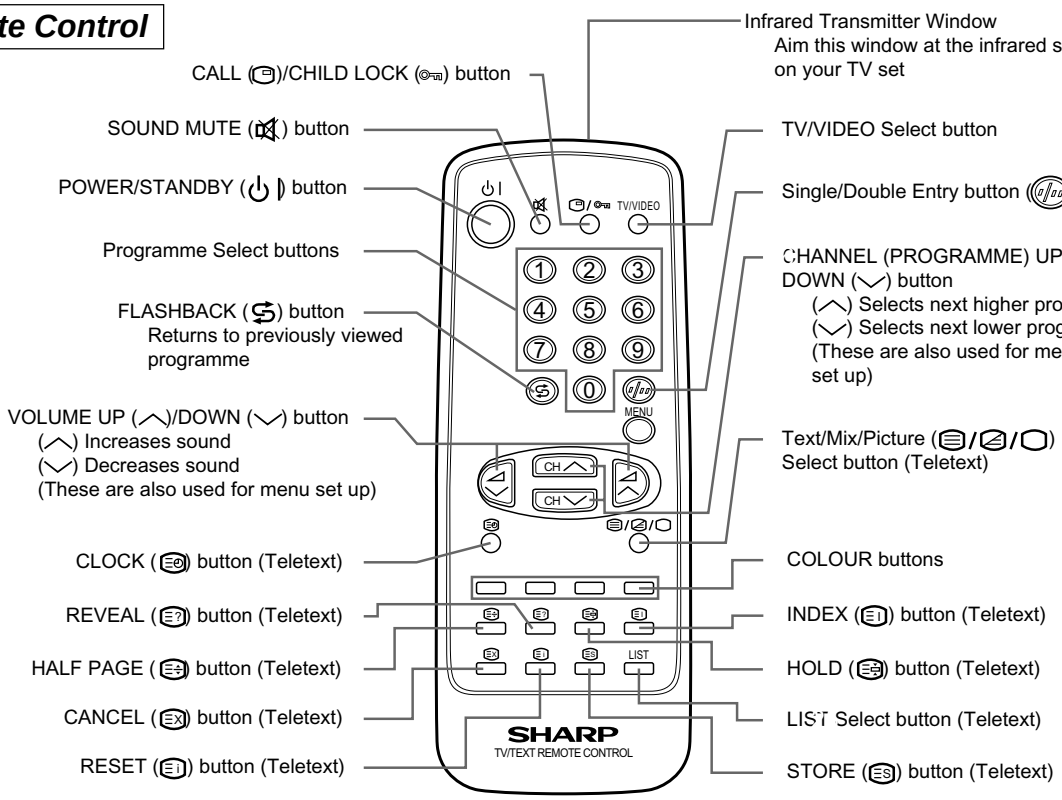
BEFORE RETURNING THE RECEIVER TO THE CUSTOMER

In addition to the above checks, the following should also be carried out before returning the receiver to the customer.

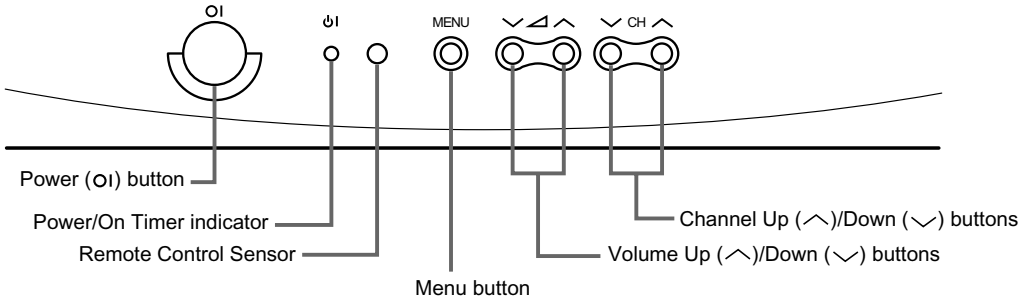
1. Inspect all the leads to ensure that they are dressed correctly and that they are not obstructed or pinched by any other parts.
2. Ensure that all protective devices are in good condition. These will include nonmetallic control knobs, insulating fish papers, cabinets backs, compartment covers or shields, mechanical insulators, etc.

Location of Controls

Remote Control


Infrared Transmitter Window
Aim this window at the infrared sensor on your TV set
CALL ( )/CHILD LOCK ( ) button
SOUND MUTE ( ) button
POWER/STANDBY ( ) button
Programme Select buttons
FLASHBACK ( ) button
Returns to previously viewed programme
VOLUME UP ( )/DOWN ( ) button
( ) Increases sound
( ) Decreases sound
(These are also used for menu set up)
CLOCK ( ) button (Teletext)
REVEAL ( ) button (Teletext)
HALF PAGE ( ) button (Teletext)
CANCEL ( ) button (Teletext)
RESET ( ) button (Teletext)
TV/VIDEO Select button
Single/Double Entry button ( )
CHANNEL (PROGRAMME) UP ( )/ DOWN ( ) button
( ) Selects next higher programme
( ) Selects next lower programme
(These are also used for menu set up)
Text/Mix/Picture (/ /) Select button (Teletext)
COLOUR buttons
INDEX ( ) button (Teletext)
HOLD ( ) button (Teletext)
LIST Select button (Teletext)
STORE ( ) button (Teletext)
TV/VIDEO
MENU
CH
LIST
SHARP
TV/TEXT REMOTE CONTROL

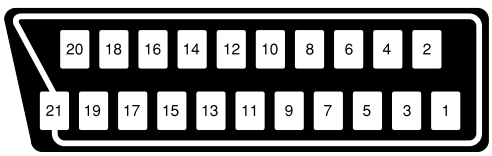
TV Front



Euro-SCART 21-Pin Terminal

For greater A/V enjoyment, various audio and video devices may be connected via the Euro-SCART 21-Pin Terminal.

21-Pin Euro-



1. Audio right output
2. Audio right input
3. Audio left output
4. Common earth for audio
5. Earth for blue
6. Audio left input
7. Blue input
8. Audio-video control
9. Earth for green
10. Not used
11. Green input
12. Not used
13. Earth for red
14. Not used
15. Red input
16. Red/Green/Blue control
17. Earth for video

NOTE

Audio: Mono Input/Output.

SERVICE ADJUSTMENT

• SERVICE MODE FUNCTION

All required adjustments for servicing this TV set, may be done in “service mode”, excepting G2 and FOCUS.

How to access “Service Mode”

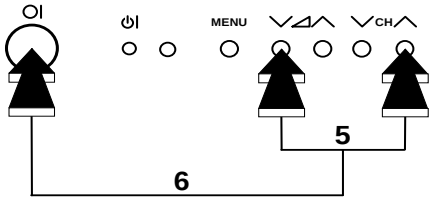


Fig.1

1. Plug in the TV set to main.

2. Connect a test pattern to the antenna terminal.

3. Tune the receiver to this signal.

4. Turn the receiver off using the mains switch (⏻).

5. Press the volume down and channel up buttons on the front of the receiver at the same time (∨◿ and CH ∧). See Fig.1.

6. Keeping these buttons pressed, turn the mains on (⏻). See Fig.1.

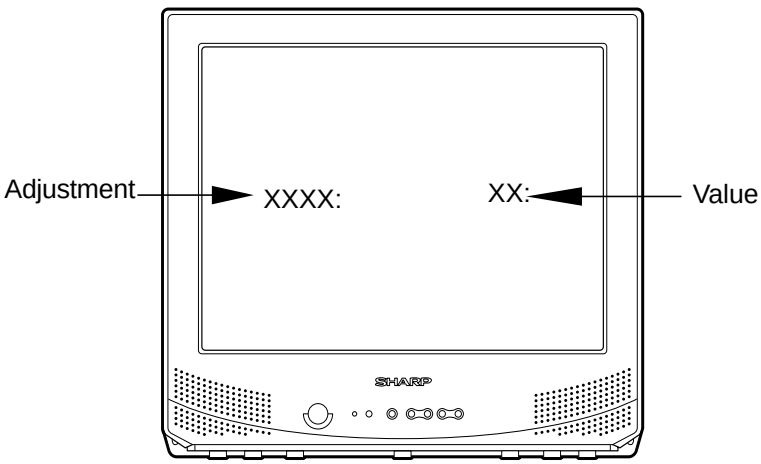
7. When the set is on «SHARP5 1 V01.30» will appear on screen. The TV set is now in “service mode”. See Fig.2.

8. Release the two buttons.

- Use the channel up and down buttons (CH∧ / CH∨) to move between the options. See Fig.3.
- Use the volume control buttons (◁ / ▷) to change the data. See Fig.3.
- The data is stored automatically when out of service mode by pressing the power key on the remote control or the mains switch.

Fig. 2

Fig. 3



SERVICE MODE ADJUSTMENT LIST

In the below table there are details about all the adjustments that can be carried out into service mode.

- No: Adjust number. Sequential from 1 to 80.
- OSD: On Screen Display indication.
- Function: Short adjustment description.
- Range: Decimal range of values in which the adjustment may be modified.
- Initial: This is the value that is recorded automatically when the EEPROM (NVM) is replaced.
  NOTE: Some of these values must be modified with the value shown in the Default column. They are pointed out in shaded tone.

  Example:
  Adjust no. 9, S-COR (S-Correction):
  Initial value (the one recorded automatically after replacing the EEPROM ... 0
  Default value (to modify manually for this model) 22
- FIX / ADJ (Fixed value / necessary to be adjusted).

No.	OSD	Function	Range	Initial	Default	FIX/ADJ
1	AGC	AGC Take Over Point	0...63	14	14	ADJ
2	V-LIN	Vertical Slope [VS]	0...63	32	32	ADJ
3	V-AMP	Vertical Amplitude [VA]	0...63	32	32	ADJ
4	V-CENT	Vertical Shift [VSH]	0...63	32	32	ADJ
5	H-CENT	Horizontal shift [HS]	0...63	32	32	ADJ
6	H-CENT60	offset to H-CENT for60 Hz	0...31 data(-16..+15)	16	20	FIX
7	EW / /	Horizontal Parallelogram [HP]	0...63	32	32	FIX
8	HB	Horizontal Bow	0...63	32	32	FIX
9	S-COR	S-Correction [SC]	0...63	0	22	FIX
10	DRI-RS	White point Red Standard white temp.	0...63	42	42	ADJ
11	DRI-GS	White point Green Standard white temp.	0...63	42	42	ADJ
12	DRI-BS	White point Blue Standard white temp	0...63	42	42	ADJ
13	DRI-RW	White point Red Warm white temp.	0...32	16	16	FIX
14	DRI-GW	White point Green Warm white temp.	0...32	16	9	FIX
15	DRI-BW	White point Blue Warm white temp.	0...32	16	9	FIX
16	DRI-RC	White point Red Cold white temp.	0...32	16	9	FIX
17	DRI-GC	White point Green Cold white temp.	0...32	16	9	FIX
18	DRI-BC	White point Blue Cold white temp.	0...32	16	16	FIX
19	SUB-VOL	Max Volume	0...63	60	60	FIX
20	SUB-CON	Sub Contrast	0...63	63	63	FIX
21	SUB-COL	Sub Colour	0...63	32	25	FIX
22	SUB-BRI	Sub Brightness	0...63	32	34	FIX
23	TINT	Sub Tint	0...63	32	32	FIX
24	SUB-SHP	Sub Sharpness	0...63	32	15	FIX
25	HTL-VOL	Max Hotel Volume	0...63	30	30	FIX

No.	OSD	Function	Range	Initial	Default	FIX/ADJ
25	HTL-VOL	Max Hotel Volume	0...63	30	30	FIX
26	HTL-PRG	Hotel Program number	0...99 or > 99 for none	255	255	FIX
27	RGB	OSD RGB Reference	0...15	15	13	FIX
28	SEARCH-SYS	Sound system for auto turning	0(L-BG),1(BG),2(I),3(DK)	1	1	FIX
29	CUT-G	Black Level off-set R [BLR]	0...63	0	0	FIX
30	CUT-B	Black Level off-set B [BLB]	0...63	0	10	FIX
31	CDL	Cathode Drive Level [CL]	0...15	0	5	FIX
32	DL-PT	Y-Delay time for PAL (TV) [YD]	0...15	12	4	FIX
33	DL-ST	Y-Delay time for SECAM (TV) [YD]	0...15	15	8	FIX
34	DL-4T	Y-Delay time for N443 (TV) [YD]	0...15	12	8	FIX
35	COL-OP	COLOUR OFFSET (PAL)	0...15	8	8	FIX
36	COL-OS	COLOUR OFFSET (SECAM)	0...15	8	8	FIX
37	COL-O4	COLOUR OFFSET (NTSC443)	0...15	4	4	FIX
38	SHP-OP	SHARPNESS OFFSET(PAL)	0...15	8	8	FIX
39	SHP-OS	SHARPNESS OFFSET(SECAM)	0...15	4	4	FIX
40	SHP-O4	SHARPNESS OFFSET(NTSC443)	0...15	8	8	FIX
41	SC-VOL	SCART volume	0..255	115	115	FIX
42	PRE-SC	Prescaler SCART input	0..127	25	25	FIX
43	PRE-FM	Prescaler FM/AM	0..127	72	72	FIX
44	PRE-NICAM	Prescaler SCART input	0..127	0	0	FIX
45	AVC-DKY	AVC Decay	1...4 data(1.2.4.8.)	2	2	FIX
46	AC-OFF-TIM	Time to set the AC-OFF timer is in steps of 10minutes	0..15	0	0	FIX
47	DISP	Language or symbols	0(symboles), 1(English), 2(French)	0	0	FIX
48	TXT-EUR	Teletext pan-European language	0 (teletext pan-european language) 1 (second language;cyrillic) 2(third language;Greek)	0	0	FIX
49	BKS	Black Stretch	0 (disable) or 1 (enable)	1	1	FIX
50	AVC	Automatic Volume Control(AVL)	0 (disable) or 1 (enable)	0	1	FIX
51	FFI	Fast Filter IF-PLL	0 (disable) or 1 (enable)	0	0	FIX
52	ACL	Auto Colour Limit	0 (disable) or 1 (enable)	0	1	FIX
53	S-L	Sound system L	0 (disable) or 1 (enable)	0	0	FIX
54	S-DK	Sound system DK	0 (disable) or 1 (enable)	1	0	FIX
55	S-I	Sound system I	0 (disable) or 1 (enable)	1	0	FIX
56	S-BG	Sound system BG	0 (disable) or 1 (enable)	1	1	FIX
57	BLUE-BACK	Video mute at Ident loss	0 (disable) or 1 (enable)	1	1	FIX
58	VMC	Video Mute at program/source Change	0 (disable) or 1 (enable)	1	1	FIX
59	HTL	Hotel mode	0 (disable) or 1 (enable)	0	0	FIX
60	BTSC	Reduced FM demodulator Gain (for BTSC sig)	0 (disable) or 1 (enable)	0	0	FIX
61	AV	Number of external AV sources	0 for 1 AV or 1 for 2 AV	1	0	FIX
62	FMWS	FM Window Selection	0 (disable) or 1 (enable)	0	0	FIX
63	SM0	Sound Mute bit 0	0 (disable) or 1 (enable)	1	1	FIX
64	SM1	Sound Mute bit 1	0 (disable) or 1 (enable)	0	0	FIX
65	AGC0	IF AGC speed bit0	0 (disable) or 1 (enable)	1	1	FIX
66	AGC1	IF AGC speed bit1	0 (disable) or 1 (enable)	0	0	FIX
67	FOA-FE	Phi 1 time constant for FE(RF)	0 (disable) or 1 (enable)	0	0	FIX
68	FOB-FE	Phi 2 time constant for FE(RF)	0 (disable) or 1 (enable)	0	0	FIX
69	FOA-AV	Phi 1 time constant for AV	0 (disable) or 1 (enable)	1	1	FIX
70	FOB-AV	Phi 2 time constant for AV	0 (disable) or 1 (enable)	1	1	FIX
71	TXT	Teletext	0 (disable) or 1 (enable)	0	1	FIX
72	TXT-WE	Teletext Western or Eastern characters	0 (westem) or 1 (eastem)	0	0	FIX
73	FSL	Forced V-SYNC slicing level	0 (disable) or 1 (enable)	0	0	FIX
74	HP2	Sync of OSD	0 for Ph1 or 1 for Ph2	0	0	FIX
75	CP	Charge pump	0 (fast tuning) or 1 (moderate speed tuning)	0	0	FIX
76	NICAM	NICAM decoding enabled	0 (disable) or 1 (enable)	0	0	FIX
77	IGR	IGR decoding enabled	0 (disable) or 1 (enable)	0	0	FIX
78	AUTO	Start auto tuning at POWER-ON	0 (disable) or 1 (enable)	0	0	FIX
79	TXT-TGL	Function of TXT key	0 or 1	0	1	FIX
80	EVG	Enable Vertical Guard	0 (disable) or 1 (enable)	1	1	FIX

•SCREEN ADJUSTMENT

1. G2 Adjustment

1. Apply mains voltage of 220V ac / 50Hz to TV.
2. Go into service mode (refer to “How to access service mode” section).
3. Use CH^ / CHv buttons in order to select «BLUE-BACK: 1».
4. Use the volume down button (◁) to deactivate the blue-back feature. «BLUE-BACK: 0» will appear on screen.
5. Re-start the TV set with the mains switch button (◯|) to store the adjustment and exit service mode.
6. Normalise the picture control settings (contrast, colour, brightness...)
7. Press TV/VIDEO button in order to select «SCART» (without video signal: black screen).
8. Apply the oscilloscope test probe to the test point <TP851> (Red output of IC801) to see the signal shown in Fig.4.
9. Adjust SCREEN VR (G2) to obtain 3 Vdc ± 0.1 Vdc.
10. Go into service mode (refer to “How to access service mode” section).
11. Use CH^ / CHv buttons in order to select «BLUE-BACK: 0».
12. Use the volume up button (▷) to deactivate the blue-back feature. «BLUE-BACK: 1» will appear on screen.
13. Re-set the TV with the mains switch button (◯|) to store the adjustment and exit service mode.

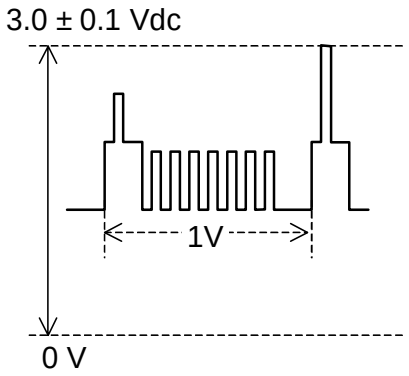


Fig.4

2. G2 Adjustment

1. Apply mains voltage of 220V ac / 50Hz to TV.
2. Receive the «MONOSCOPE» pattern signal to a level between 60 and 80 dBµV.
3. Normalise the picture control settings (contrast, colour, brightness...)
4. Adjust focus potentiometer to obtain maximum definition.

• AGC ADJUSTMENT

1. Receive the «COLOUR BAR» signal (Channel E-12). Signal
Strength: 57 dBµV ± 1 dB µV (50 ohm open) or 59 dB µV ± 1 75 ohm open).
2. Connect the oscilloscope to test point <TP201> (R201 lead) and the voltmeter c.c., as shown in Fig.5.
3. Go into service mode (refer to “How to access service mode” section).
4. Use CH^ / CHv buttons in order to select «AGC».
5. Use ◁ / ▷ to obtain the Tuner output pin drop: 0.1 V ~ 0.3 V below maximum voltage.
6. Change the antenna input signal to 63-67dB µV, and make sure there is no noise.
7. Turn up the input signal to 90-95 dB µV to be sure that there is no cross.

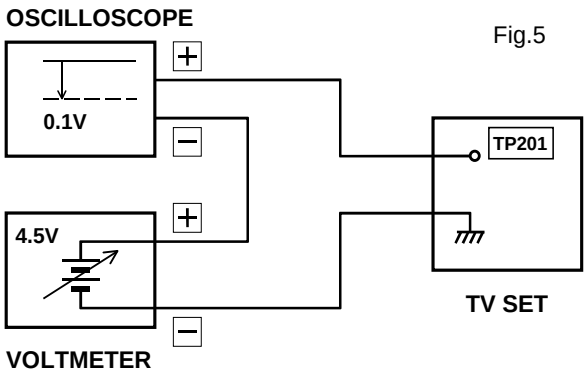


Fig.5

8. Re-set the TV with the mains switch button (◯|) to store the adjustment and exit service mode.

• GEOMETRY ADJUSTMENT PROCEDURE

1. Receive Philips.
2. Go into service mode (refer to “How to access service mode” section).
3. Use CH^ / CHv buttons in order to select the required adjust.
4. Re-set the TV with the mains switch button (O|) to store the adjustment and exit service mode.

V-LIN (Vertical slope adjust)

a) Use ◁ / ▷ buttons to move the picture.

b) Adjust the vertical linearity to obtain picture centring (fig. 6).

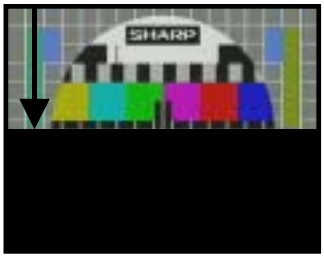


Fig. 6

V-AMP (Vertical amplitude adjust)

a) When ▷ button is pressed, vertical size of picture increases.

b) When ◁ button is pressed, vertical size of picture decreases

c) Adjust the vertical amplitude to obtain picture overscan (Fig. 7).

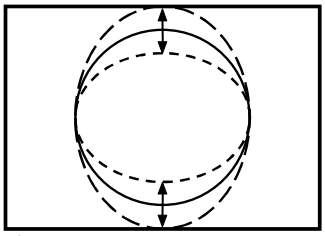


Fig. 7

V-CENT (Vertical shift adjust)

a) When ▷ button is pressed, picture moves down.

b) When ◁ button is pressed, picture moves up.

c) Adjust the vertical shift to obtain picture centring (Fig. 8).

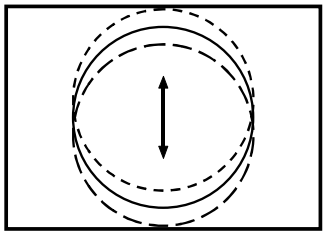


Fig. 8

H-CENT (Horizontal shift adjust)

d) When ▷ button is pressed, picture moves to right.

e) When ◁ button is pressed, picture moves to left.

f) Adjust the vertical shift to obtain picture centring (Fig. 9).

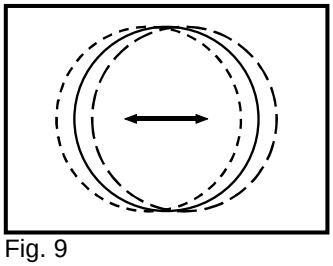


Fig. 9

•COLOUR ADJUSTMENT PROCEDURE

The following adjustments should only be carried out when the CRT or IC801 are replaced.

NOTES:

- This adjustment must be done after warming up the unit for 30 minutes or longer with a beam current over 700 µA.
- The red value «DRI-RS» should be fixed to 32. (Refer to “How to access service mode” section).
- «DRI-GS» adjustment alters “Y” co-ordinate.
- «DRI-BS» adjustment alters “X” and “Y” co-ordinates.

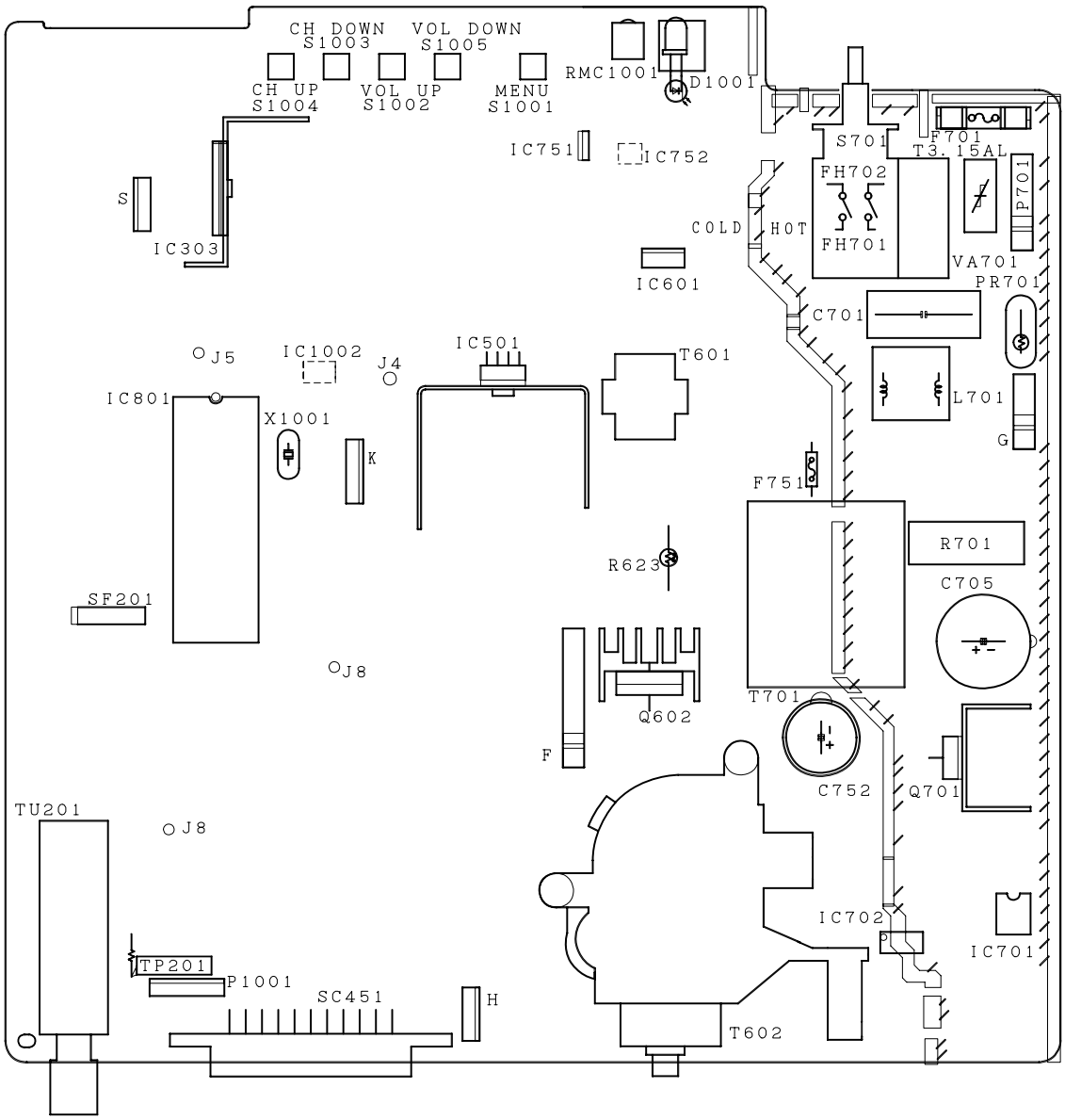
1. Adjust G2.
2. Tune a white pattern with burst signal.
3. Adjust colour to minimum.
4. Position the colorimeter in the centre of screen.
5. Using brightness and contrast buttons, select a luminance of 120 nits.
6. Operate again in “service mode“ and select «DRI-GS» and/or «DRI-BS» locations to obtain colour co-ordinates:

MODEL	X	Y	Screen temperature
21HT-15SES	0.290 ± 0.015	0.284 ± 0.015	8900º K-20 MPCD
21HT-15SDE 21HT-15SIT	0.290 ± 0.015	0.300 ± 0.015	8550º K+1 MPCD

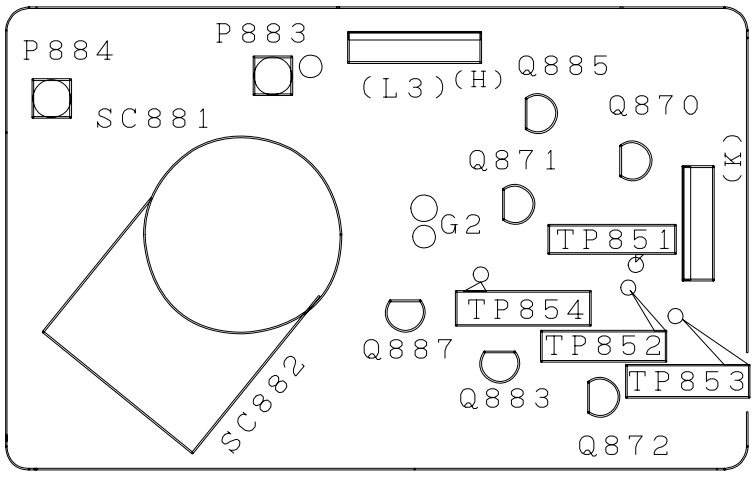
9. Re-set the TV with the mains switch button (⏻) to store the adjustment and exit service mode**.**
10. Check colour co-ordinates “X” and “Y” at 20 a 120 Nits. It may be necessary to repeat the same procedure to obtain the above values.

CHASSIS LAYOUT

MOTHER UNIT



CRT UNIT



LED FLASHING CODE

PURPOSE: The led indicates the power mode,ocurred I²C error and On timer

INPUT:
- Current power mode
- I²C Errors
- On timer

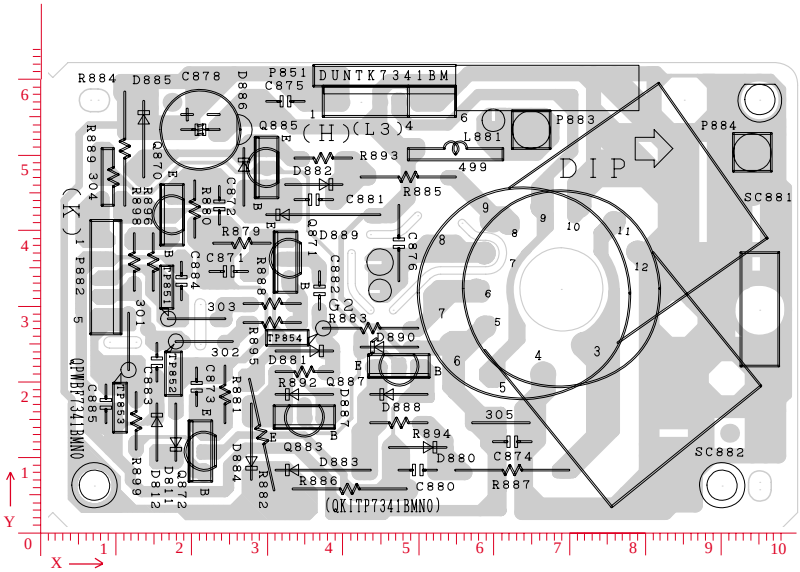
Processing:
- If in STANDBY mode and On timer in-active then switch LED off.
- If in STANDBY and On timer active
  set LED to blinking, (switch on and off at 1 Hz with a 50 % duty cycle).
- If in POWER-ON mode, switch LED on.
- If an I²C error occurred, let the LED blink at 1 Hz, 50 % duty cycle.
  For the blinking times see the Table below.

Note: Only when an I²C error occurs for a number of times, or for a number of seconds, the I²C error is handled by the system (that is ,only then the set will go to standby, the led starts blinking).

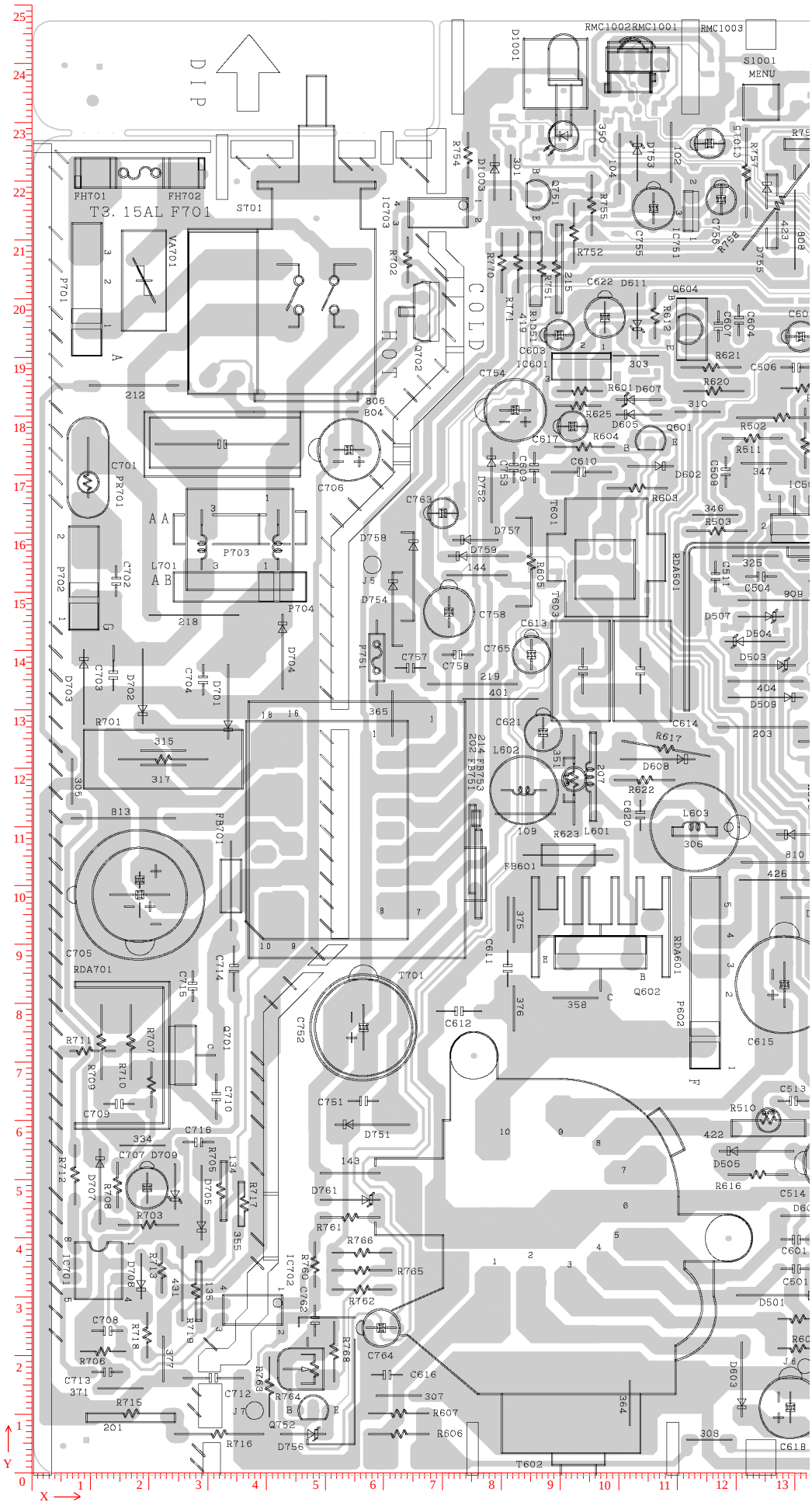
IC/Module Name	Slave Address	Bus Error LED Blinking Time	Remarks	Ref. No.
M24C04	A0,A2	2	512x8 EEPROM	IC1002
TDA935x/6x/8x	8A	3	Address of internal TV processor	IC801
VTST6HD64 or	C0	6	PLL Tuner	TU201
CTF551	C0	6		

Table Error LED blinking times

F 7341N0 PRINTED WIRING BOARD. Component side.



F 7340N2 PRINTED WIRING BOARD. Component side.



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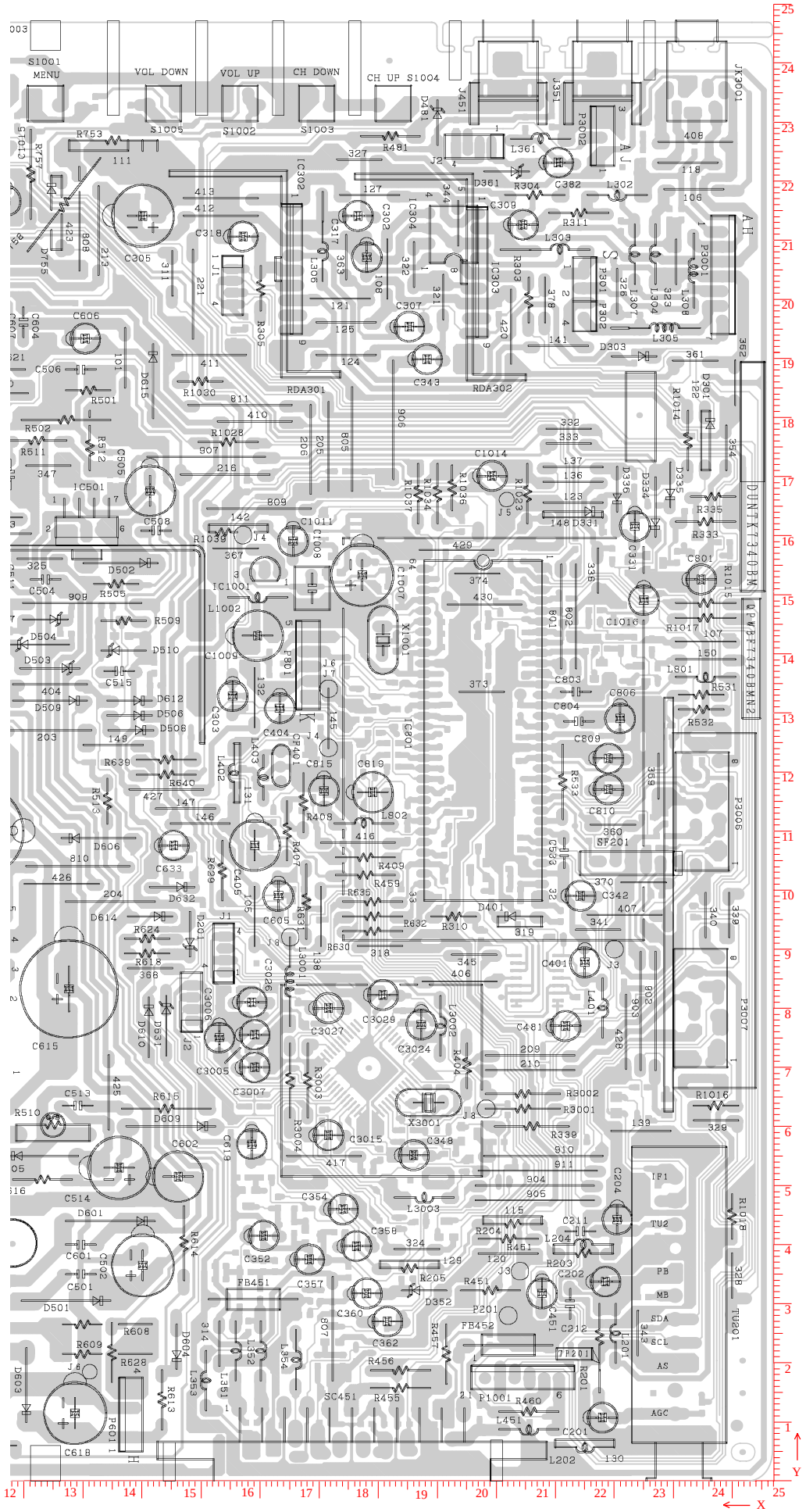
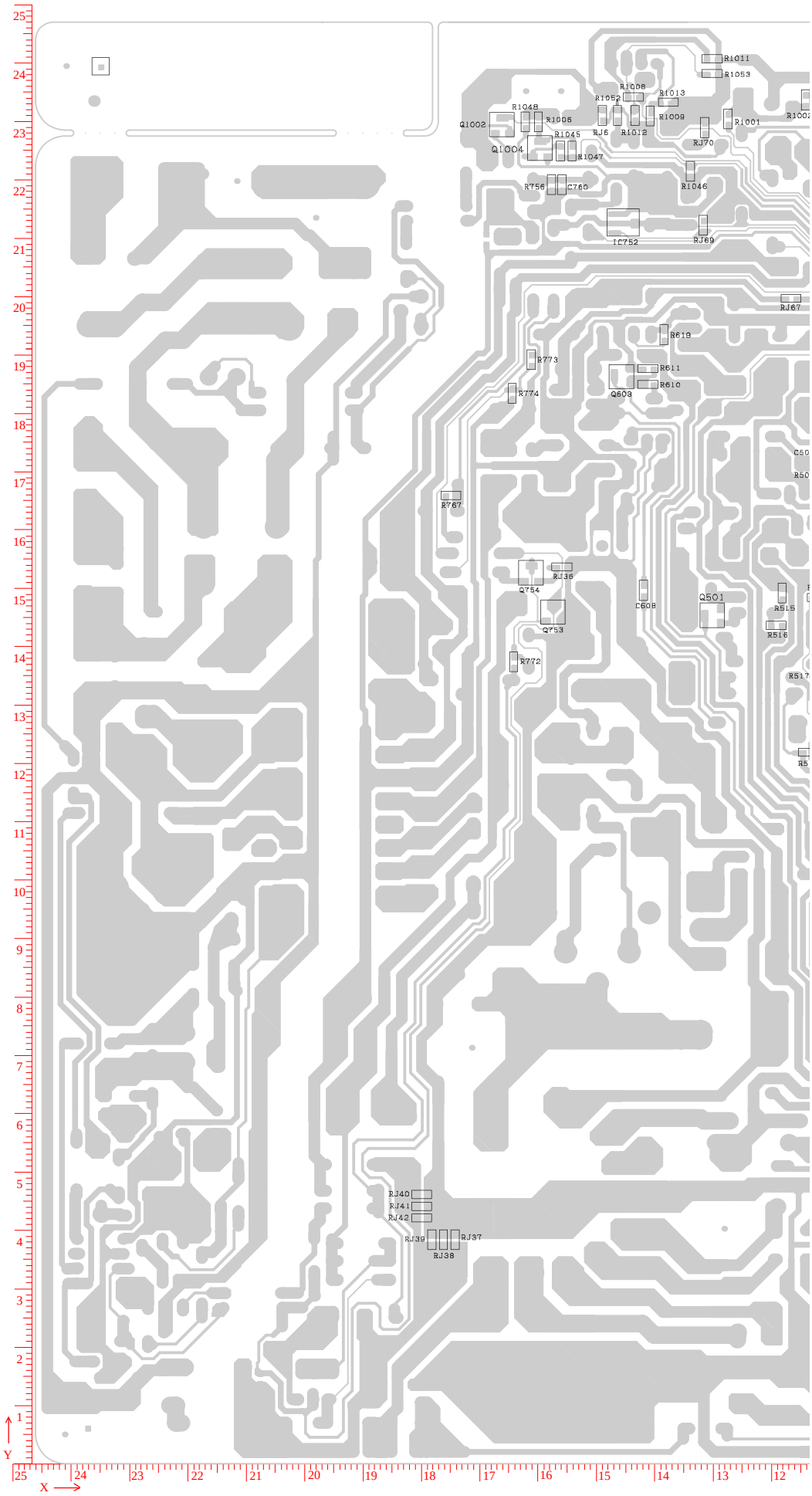
F 7340N2 PRINTED WIRING BOARD. Component side.



F 7340N2 PRINTED WIRING BOARD. Copper side.



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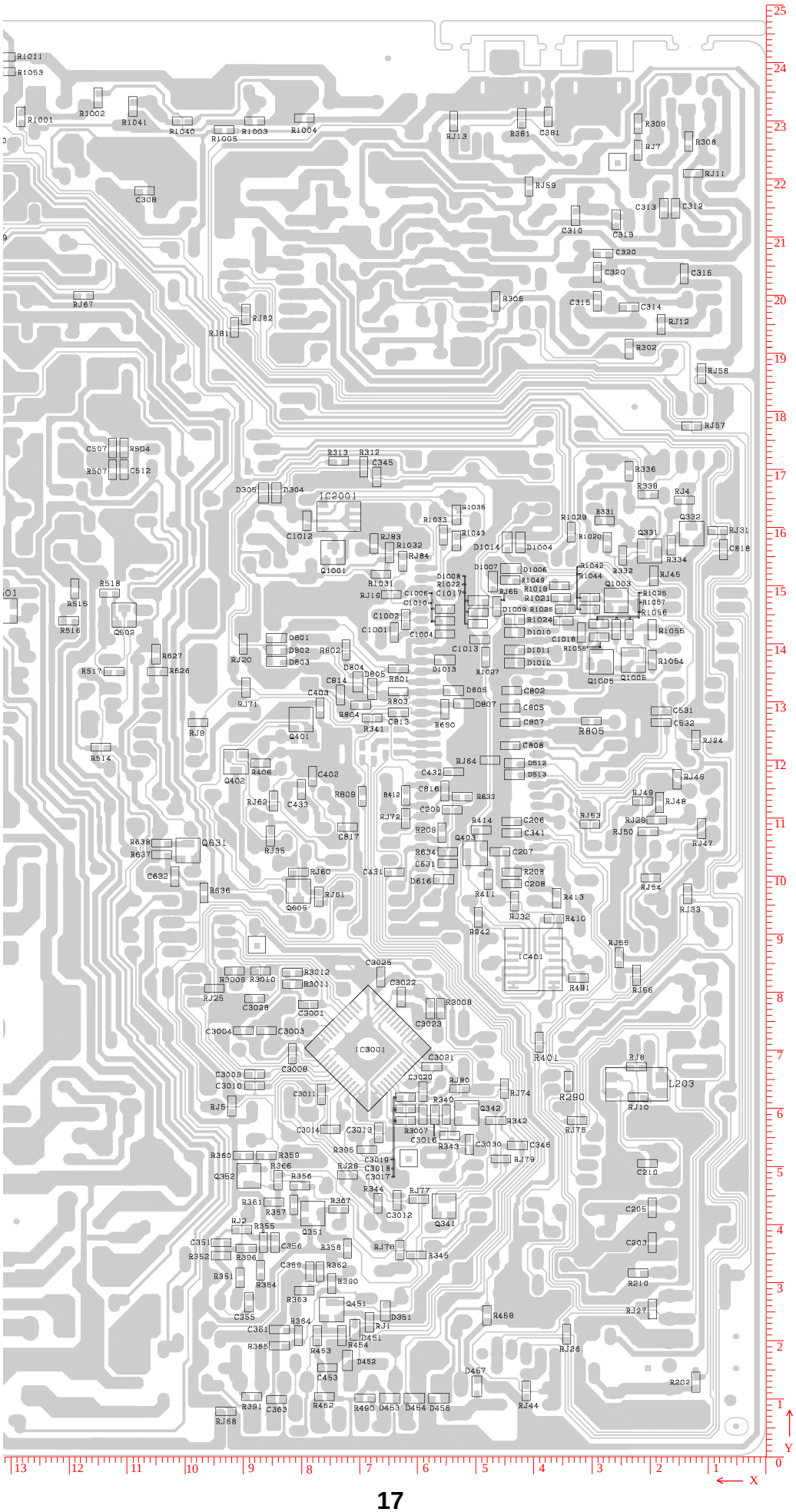
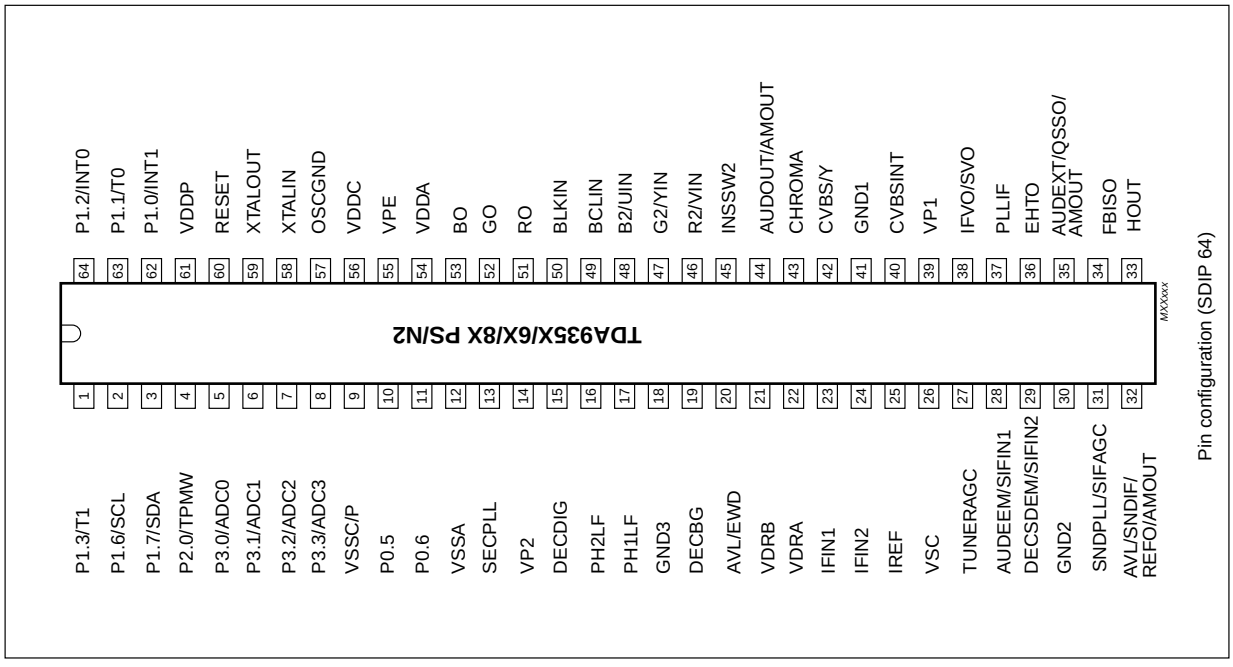
F 7340N2 PRINTED WIRING BOARD. Copper side.



ICs ADITIONAL INFORMATION:TDA9350(IC801)

QUICK REFERENCE DATA

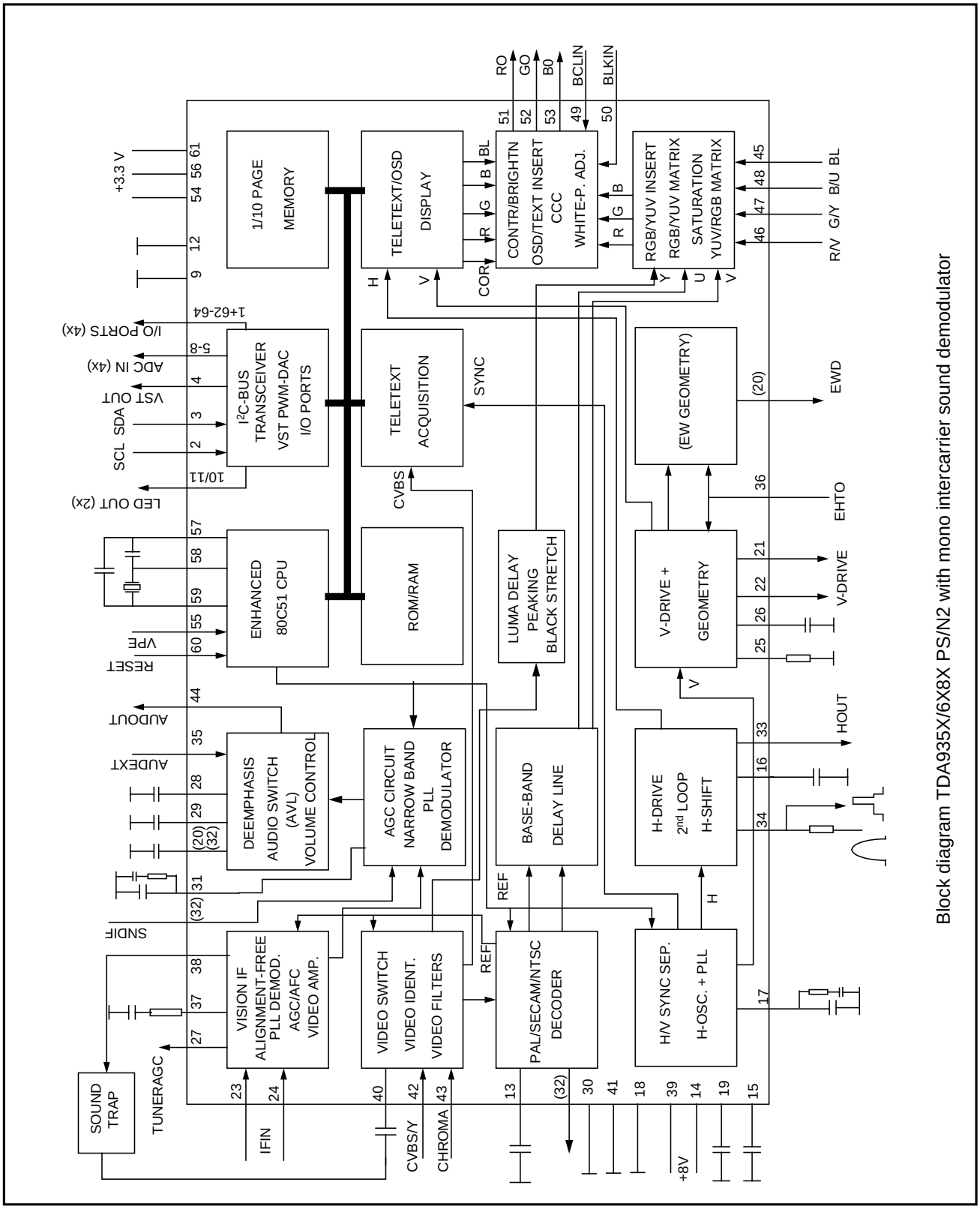
SYMBOL	PARAMETER	MIN.	TYP.	MAX.	UNIT
Supply					
V_P	supply voltages	–	8.0/3.3	–	V
I_P	supply current	–	135/60	–	mA
Input voltages					
$V_{iVIFrms)}$	video IF amplifier sensitivity (RMS value)	–	75	–	µV
$V_{iSIF(rms)}$	QSS sound IF amplifier sensitivity (RMS value)	–	60	–	µV
$V_{iAUDIO(rms)}$	external audio input (RMS value)	–	500	–	mV
$V_{iCVBS(p-p)}$	external CVBS/Y input (peak-to-peak value)	–	1.0	–	V
$V_{iCHROMA(p-p)}$	external chroma input voltage (burst amplitude) (peak-to-peak value)	–	0.3	–	V
$V_{iRGB(p-p)}$	RGB inputs (peak-to-peak value)	–	0.7	–	V
$V_{iYIN(p-p)}$	luminance input signal (peak-to-peak value)	–	1.4	–	V
$V_{iUVIN(p-p)}$	U/V input signal (peak-to-peak value)	–	1.33/1.05	–	V
Output signals					
$V_{o(IFVO)(p-p)}$	demodulated CVBS output (peak-to-peak value)	–	2.5	–	V
$V_{o(QSSO)(rms)}$	sound IF intercarrier output in QSS versions (RMS value)	–	100	–	mV
$V_{o(AMOUT)(rms)}$	demodulated AM sound output in QSS versions (RMS value)	–	500	–	mV
$I_{o(AGCOUT)}$	tuner AGC output current range	0	–	5	mA
$V_{oRGB(p-p)}$	RGB output signal amplitudes (peak-to-peak value)	–	2.0	–	V
I_{oHOUT}	horizontal output current	10	–	–	mA
I_{oVERT}	vertical output current (peak-to-peak value)	1	–	–	mA
I_{oEWD}	EW drive output current	1.2	–	–	mA



Pin configuration (SDIP 64)

ICs ADITIONAL INFORMATION:TDA9350(IC801)

BLOCK DIAGRAM



Block diagram TDA935X/6X8X PS/N2 with mono intercarrier sound demodulator

ICs ADITIONAL INFORMATION:TDA9350(IC801)

PINNING

SYMBOL	PIN	DESCRIPTION
P1.3/T1	1	port 1.3 or Counter/Timer 1 input
P1.6/SCL	2	port 1.6 or I^2C-bus clock line
P1.7/SDA	3	port 1.7 or I^2C-bus data line
P2.0/TPWM	4	port 2.0 or Tuning PWM output
P3.0/ADC0	5	port 3.0 or ADC0 input
P3.1/ADC1	6	port 3.1 or ADC1 input
P3.2/ADC2	7	port 3.2 or ADC2 input
P3.3/ADC3	8	port 3.3 or ADC3 input
VSSC/P	9	digital ground for µ-Controller core and periphery
P0.5	10	port 0.5 (8 mA current sinking capability for direct drive of LEDs)
P0.6	11	port 0.6 (8 mA current sinking capability for direct drive of LEDs)
VSSA	12	analog ground of Teletext decoder and digital ground of TV-processor
SECPLL	13	SECAM PLL decoupling
VP2	14	2nd supply voltage TV-processor (+8V)
DECDIG	15	decoupling digital supply of TV-processor
PH2LF	16	phase-2 filter
PH1LF	17	phase-1 filter
GND3	18	ground 3 for TV-processor
DECBG	19	bandgap decoupling
AVL/EWD (1)	20	Automatic Volume Levelling /East-West drive output
VDRB	21	vertical drive B output
VDRA	22	vertical drive A output
IFIN1	23	IF input 1
IFIN2	24	IF input 2
IREF	25	reference current input
VSC	26	vertical sawtooth capacitor
TUNERAGC	27	tuner AGC output
AUDEEM/SIFIN1(1)	28	audio deemphasis or SIF input 1
DECSDEM/SIFIN2(1)	29	decoupling sound demodulator or SIF input 2
GND2	30	ground 2 for TV processor
SNDPLL/SIFAGC(1)	31	narrow band PLL filter /AGC sound IF
AVL/SNDIF/REF0/ AMOUT(1)	32	Automatic Volume Levelling / sound IF input / subcarrier reference output /AM output (non controlled)
HOUT	33	horizontal output
FBISO	34	flyback input/sandcastle output
AUDEXT/ QSSO/AMOUT(1)	35	external audio input /QSS intercarrier out /AM audio output (non controlled)
EHTO	36	EHT/overvoltage protection input
PLLIF	37	IF-PLL loop filter
IFVO/SVO	38	IF video output / selected CVBS output
VP1	39	main supply voltage TV-processor (+8 V)
CVBSINT	40	internal CVBS input
GND1	41	ground 1 for TV-processor
CVBS/Y	42	external CVBS/Y input
CHROMA	43	chrominance input (SVHS)
AUDOUT /AMOUT(1)	44	audio output /AM audio output (volume controlled)

ICs ADITIONAL INFORMATION:TDA9350(IC801)

SYMBOL	PIN	DESCRIPTION
INSSW2	45	2nd RGB / YUV insertion input
R2/VIN	46	2nd R input / V (R-Y) input
G2/YIN	47	2nd G input / Y input
B2/UIN	48	2nd B input / U (B-Y) input
BCLIN	49	beam current limiter input / (V-guard input, note 2)
BLKIN	50	black current input / (V-guard input, note 2)
RO	51	Red output
GO	52	Green output
BO	53	Blue output
VDDA	54	analog supply of Teletext decoder and digital supply of TV-processor (3.3 V)
VPE	55	OTP Programming Voltage
VDDC	56	digital supply to core (3.3 V)
OSCGND	57	oscillator ground supply
XTALIN	58	crystal oscillator input
XTALOUT	59	crystal oscillator output
RESET	60	reset
VDDP	61	digital supply to periphery (+3.3 V)
P1.0/INT1	62	port 1.0 or external interrupt 1 input
P1.1/T0	63	port 1.1 or Counter/Timer 0 input
P1.2/INT0	64	port 1.2 or external interrupt 0 input

Note

1. The function of pin 20, 28, 29, 31, 32, 35 and 44 is dependent on the IC version (mono intercarrier FM demodulator / QSS IF amplifier and East-West output or not) and on some software control bits. The valid combinations are given in table 1.
2. The vertical guard function can be controlled via pin 49 or pin 50. The selection is made by means of the IVG bit in subaddress 2BH.

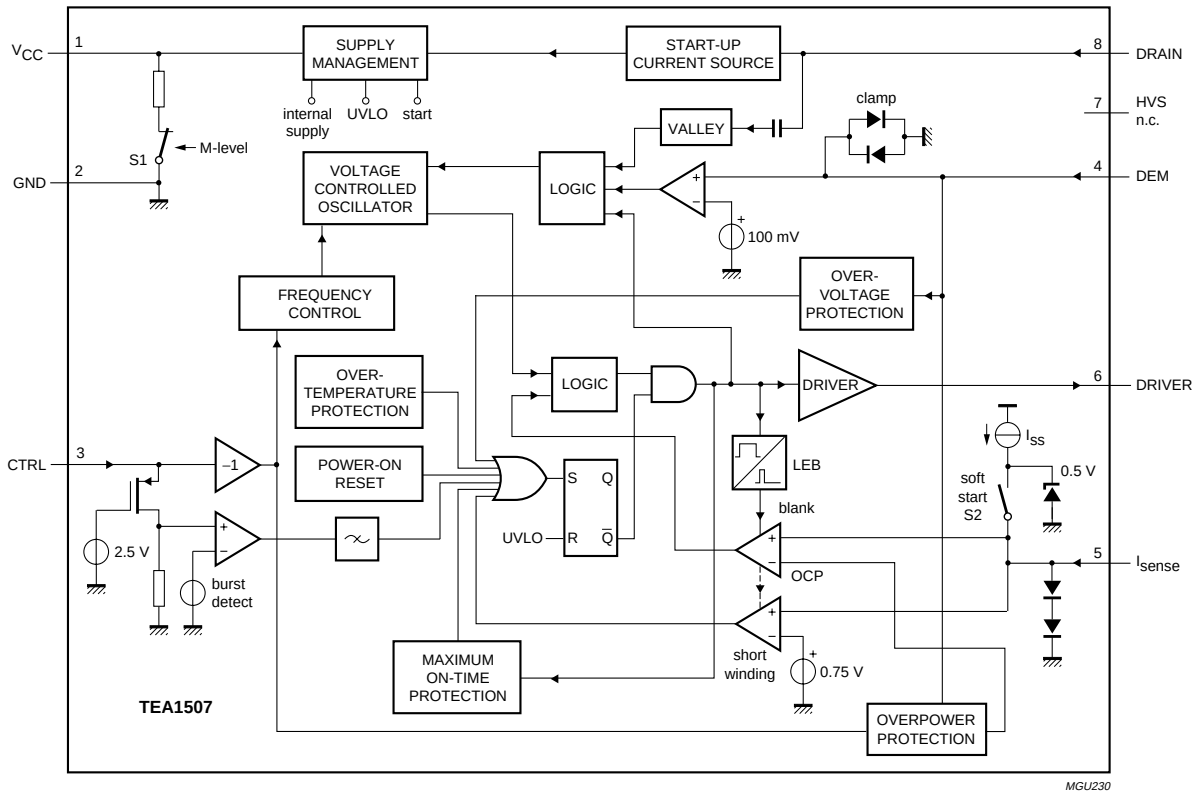
Table 1 Pin functions for various versions

IC version	FM-PLL version				QSS version					
East-West Y/N	N		Y		N			Y		
CMB1/CMB0 bits	00	01/10/11	00	01/10/11	00	01/10/11		00	01/10/11	
AM bit	–	–	–	–	–	0	1	–	0	1
Pin 20	AVL		EWD		AVL			EWD		
Pin 28	AUDEEM				SIFIN1					
Pin 29	DECSDEM				SIFIN2					
Pin 31	SNDPLL				SIFAGC					
Pin 32	SNDIF(1)	REFO(2)	AVL/SNDIF(1)	REFO(2)	AMOUT	REFO(2)		AMOUT	REFO(2)	
Pin 35	AUDEXT				AUDEXT	QSSO	AMOUT	AUDEXT	QSSO	AMOUT
Pin 44	AUDOUT				controlled AM or audio out					

Note

1. When additional (external) selectivity is required for FM-PLL system pin 32 can be used as sound IF input. This function is selected by means of SIF bit in subaddress 28H.
2. The reference output signal is only available for the CMB1/CMB0 setting of 0/1. For the other settings this pin is a switch output (see also table 67).

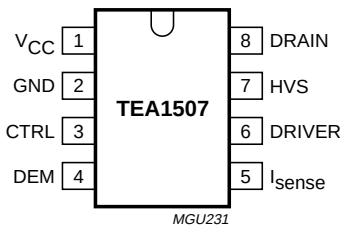
ICs ADITIONAL INFORMATION:TEA1507(IC701)



Block diagram.

PINNING

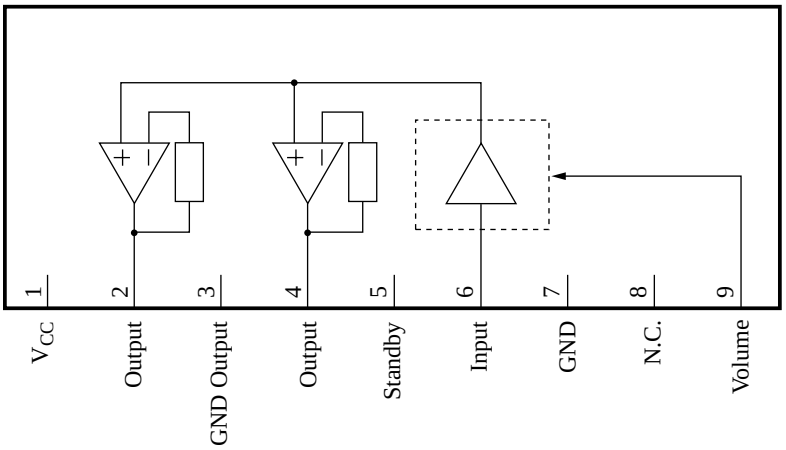
SYMBOL	PIN	DESCRIPTION
V_{CC}	1	supply voltage
GND	2	ground
CTRL	3	control input
DEM	4	input from auxiliary winding for demagnetization timing, OVP and OPP
I_{sense}	5	programmable current sense input
DRIVER	6	gate driver output
HVS	7	high voltage safety spacer, not connected
DRAIN	8	drain of external MOS switch, input for start-up current and valley sensing



Pin configuration.

ICs ADITIONAL INFORMATION:AN7523(IC303)

Circuit Function Block Diagram



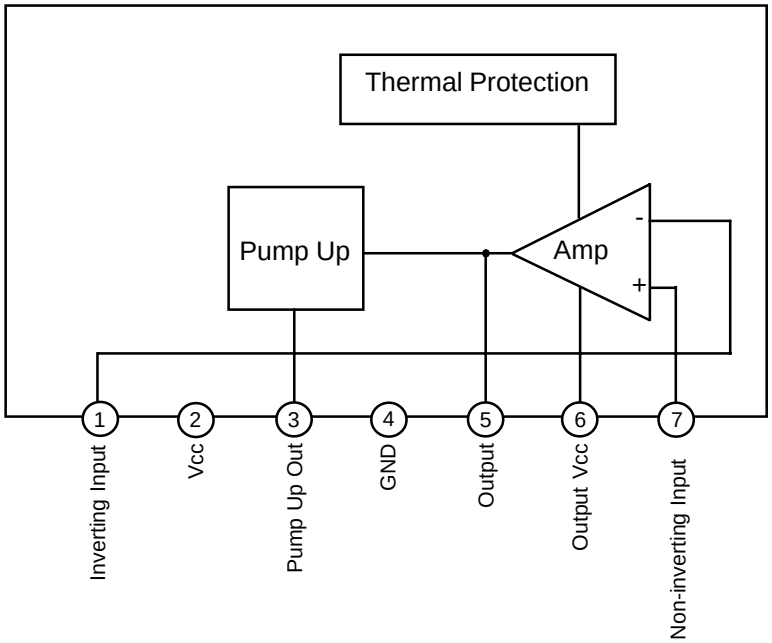
Pin Descriptions

Pin No.	Description
1	Vcc
2	Ch Output (+)
3	GND (Output)
4	Ch Output (-)
5	Standby
6	Ch Input
7	GND (Input)
8	N.C
9	Volume

Note: Do not apply voltage or current to NC pin from outside

ICs ADITIONAL INFORMATION:AN5522(IC501)

Circuit Function Block Diagram



Pin Descriptions

Pin No.	Pin Name
1	Inverting Input
2	Power Supply
3	Pump-up Output
4	GND
5	Vertical Output
6	Vertical Output Power Supply
7	Non-inverting Input

DESCRIPTION OF SCHEMATIC DIAGRAM

SAFETY NOTE:
1. DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACING PARTS.

2. SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.

IMPOTANT SAFETY NOTE:

PARTS MARKED WITH « ⚠ » ( ) ARE IMPORTANT FOR MAINTAINING THE SAFETY OF THE SET. BE SURE TO REPLACE THESE PARTS WITH SPECIFIED ONES FOR MAINTAINING THE SAFETY AND PERFORMANCE OF THE SET.

CAUTION
This circuit diagram is original one, therefore there may be slight difference from yours.

NOTE:
1. The unit of resistance «ohm»is omitted (K=1000 ohms. M= Megaohm).
2. All resistors are 1/8 watt. unless otherwise noted.
3. All capacitors are μF, unless otherwise noted (P= μμF).
4. The capacitor with Part No. RC-FZ9XXXBMNJ is designed to with stand 63V.
5. The capacitor with Part No. RC-FZ4XXXBMNJ is designed to with stand 50V.

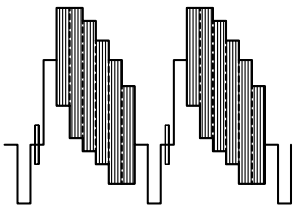
SERVICE PRECAUTION:

THE AREA ENCLOSED BY THIS LINE (–•–•–) IS DIRECTLY CONNECTED WITH AC MAINS VOLTAGE.
WHEN SERVICING THE AREA, CONNECT AN ISOLATING TRANSFORMER BETWEEN TV RECEIVER AND AC LINE TO ELIMINATE HAZARD OF ELECTRIC SHOCK.

WAVEFORM MEASUREMENT CONDITION:
Colour bar genetator signal of 70 dB from RF input.

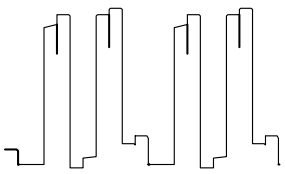
WAVEFORMS:

① 1.0 Vp-p



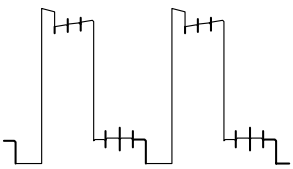
Horiz Rate

② 3.11 Vp-p



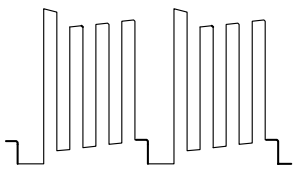
Horiz Rate

③ 3.3 Vp-p



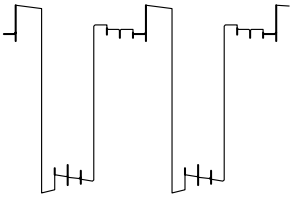
Horiz Rate

④ 3.58 Vp-p



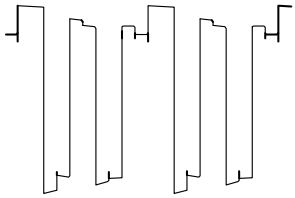
Horiz Rate

⑤ 79.6 Vp-p



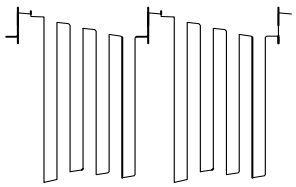
Horiz Rate

⑥ 92 Vp-p



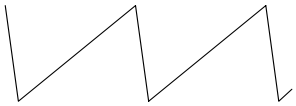
Horiz Rate

⑦ 90 Vp-p



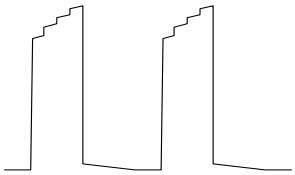
Horiz Rate

⑧ 3.14 Vp-p



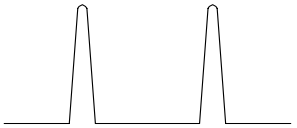
Vert Rate

⑨ 2.58 Vp-p



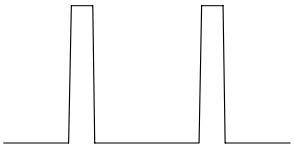
Horiz Rate

⑩ 120 Vp-p



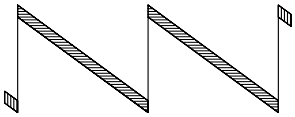
Horiz Rate

⑪ 9.2 Vp-p



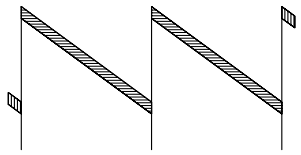
Horiz Rate

⑫ 0.14 Vp-p



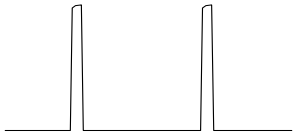
Vert Rate

⑬ 0.192 Vp-p



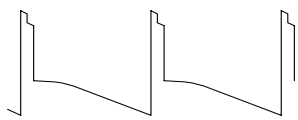
Vert Rate

⑭ 1.36 Vp-p



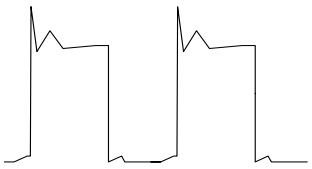
Vert Rate

⑮ 48.6 Vp-p



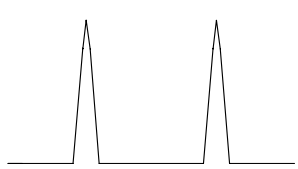
Vert Rate

⑯ 145 Vp-p



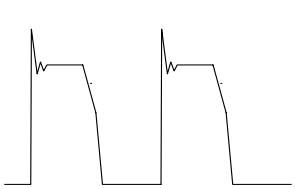
Horiz Rate

⑰ 1055 Vp-p



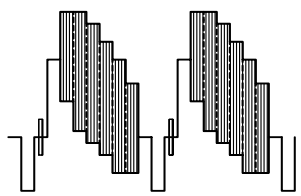
Horiz Rate

⑱ 612 Vp-p(AC240V)



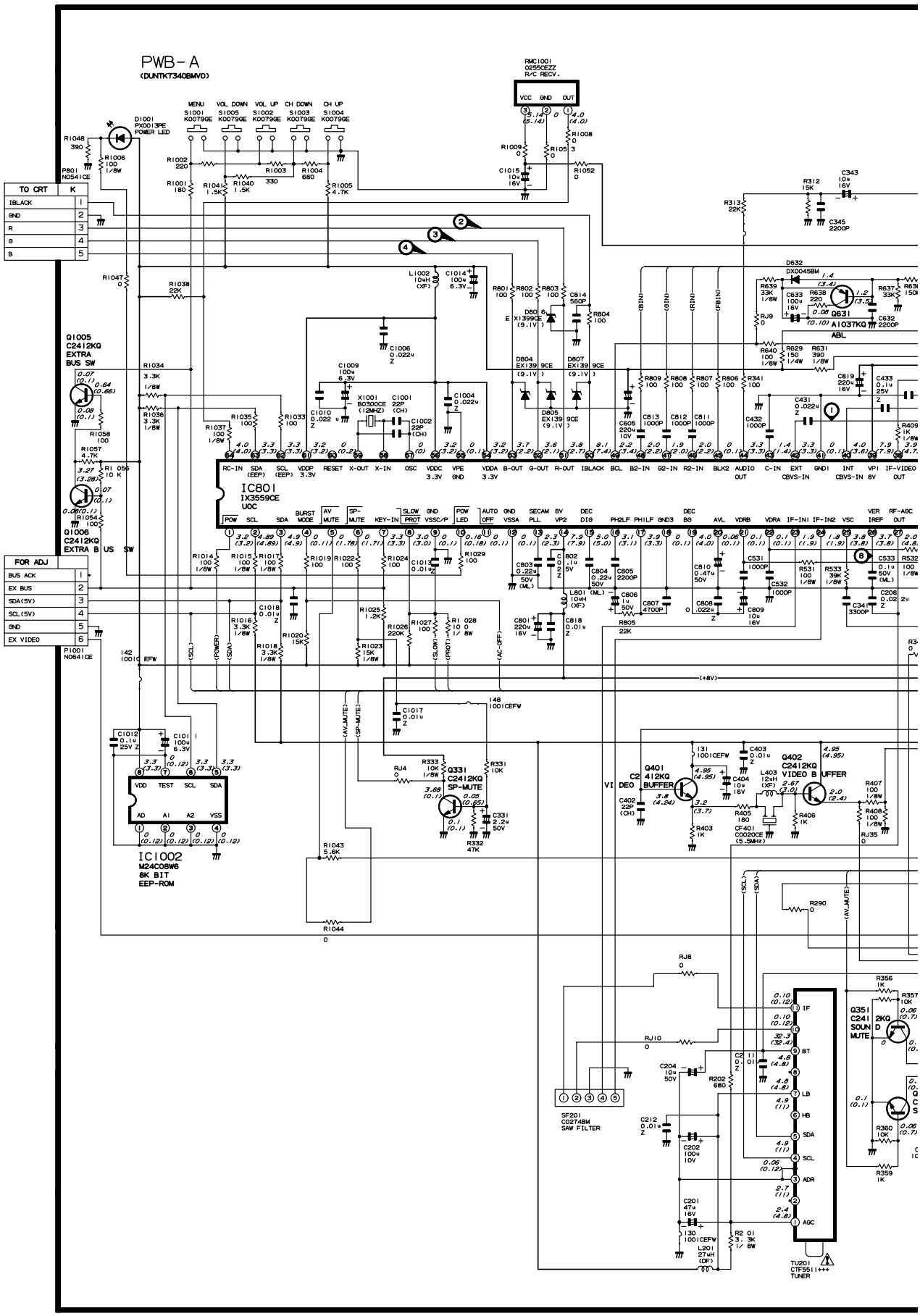
Vert Rate

⑲ 2.0 Vp-p

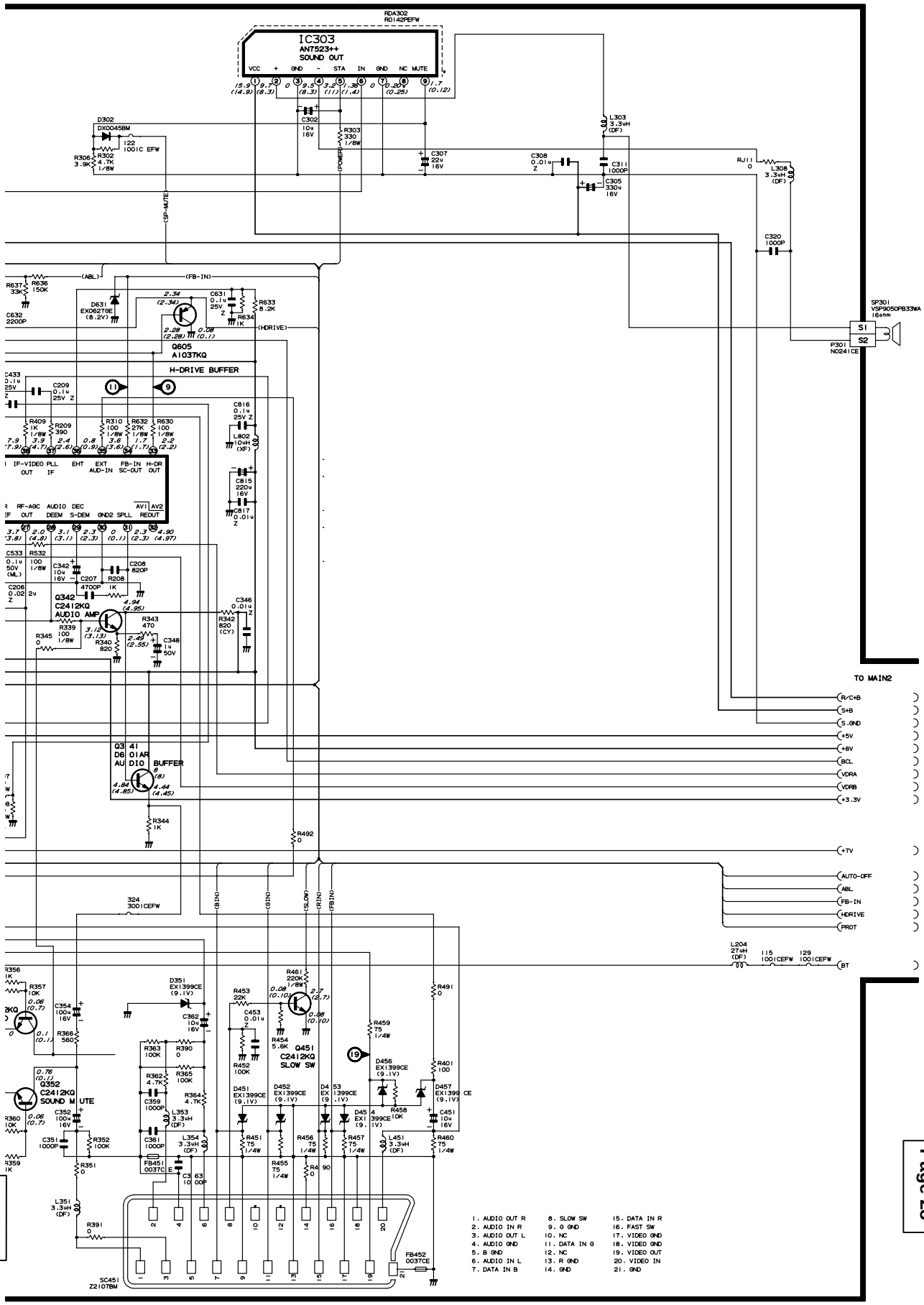


Horiz Rate

SCHEMATIC DIAGRAM OF MOTHER UNIT (F7340N2, 00 Version)



SCHEMATIC DIAGRAM OF MOTHER UNIT (F7340N2, 00 Version)



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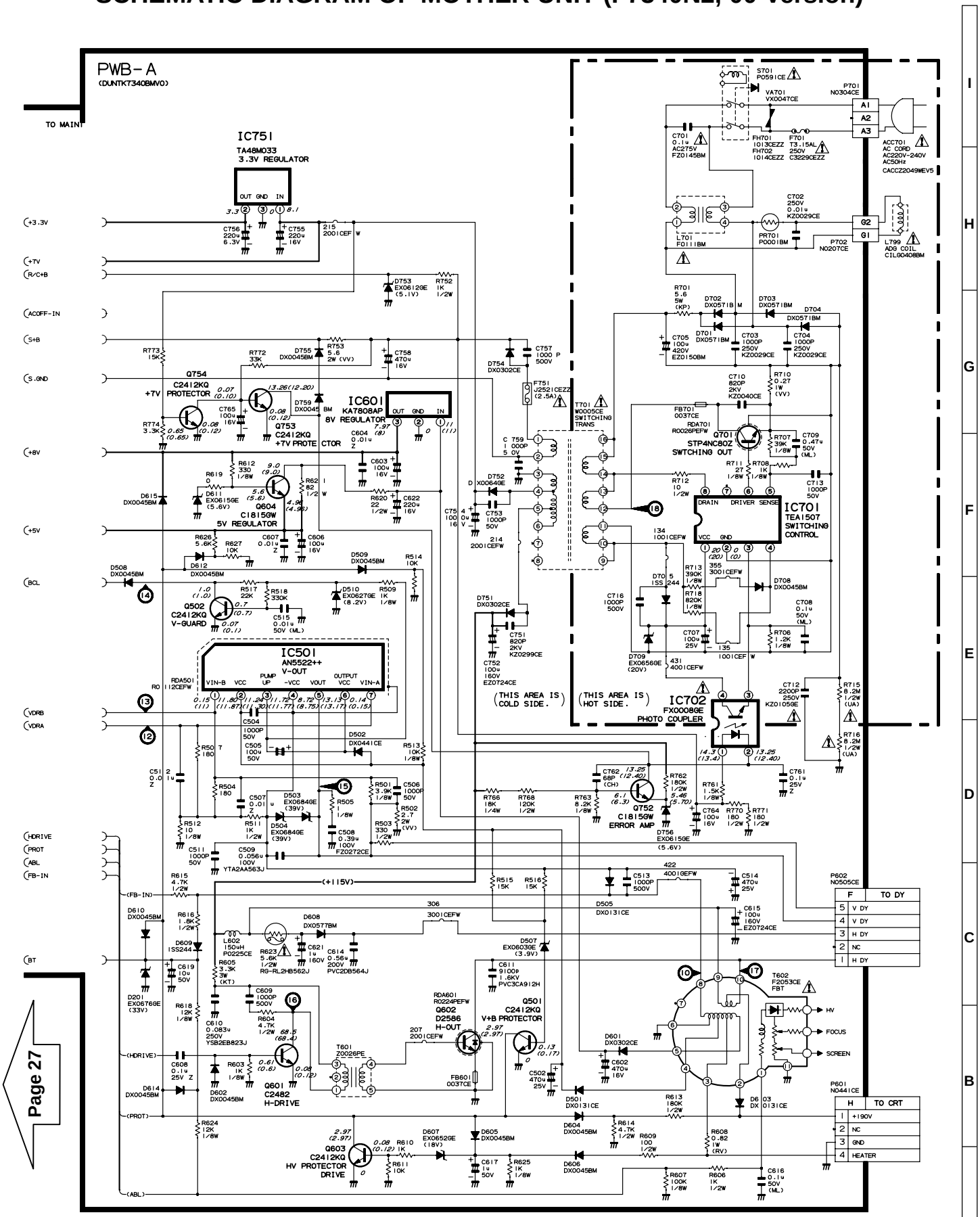
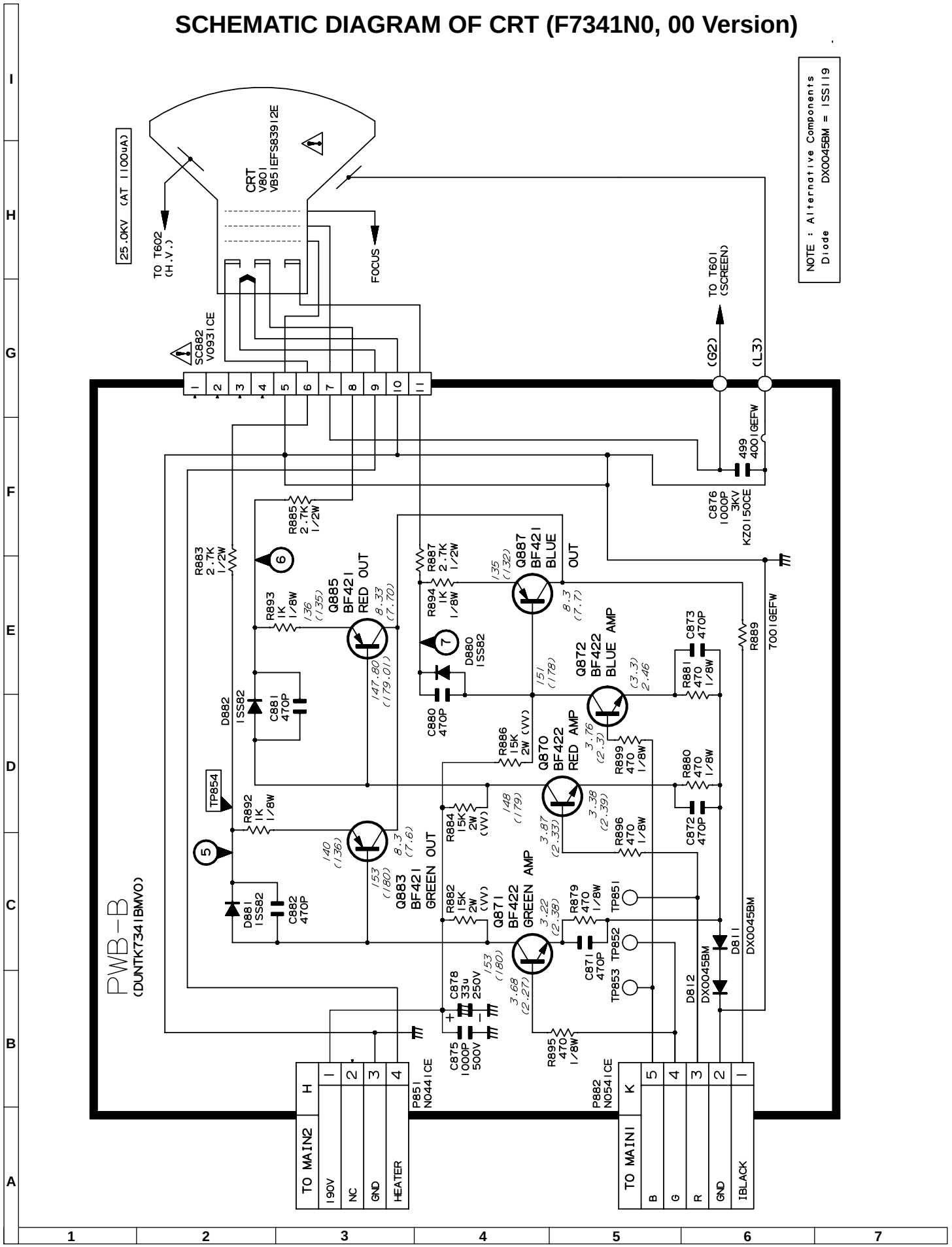
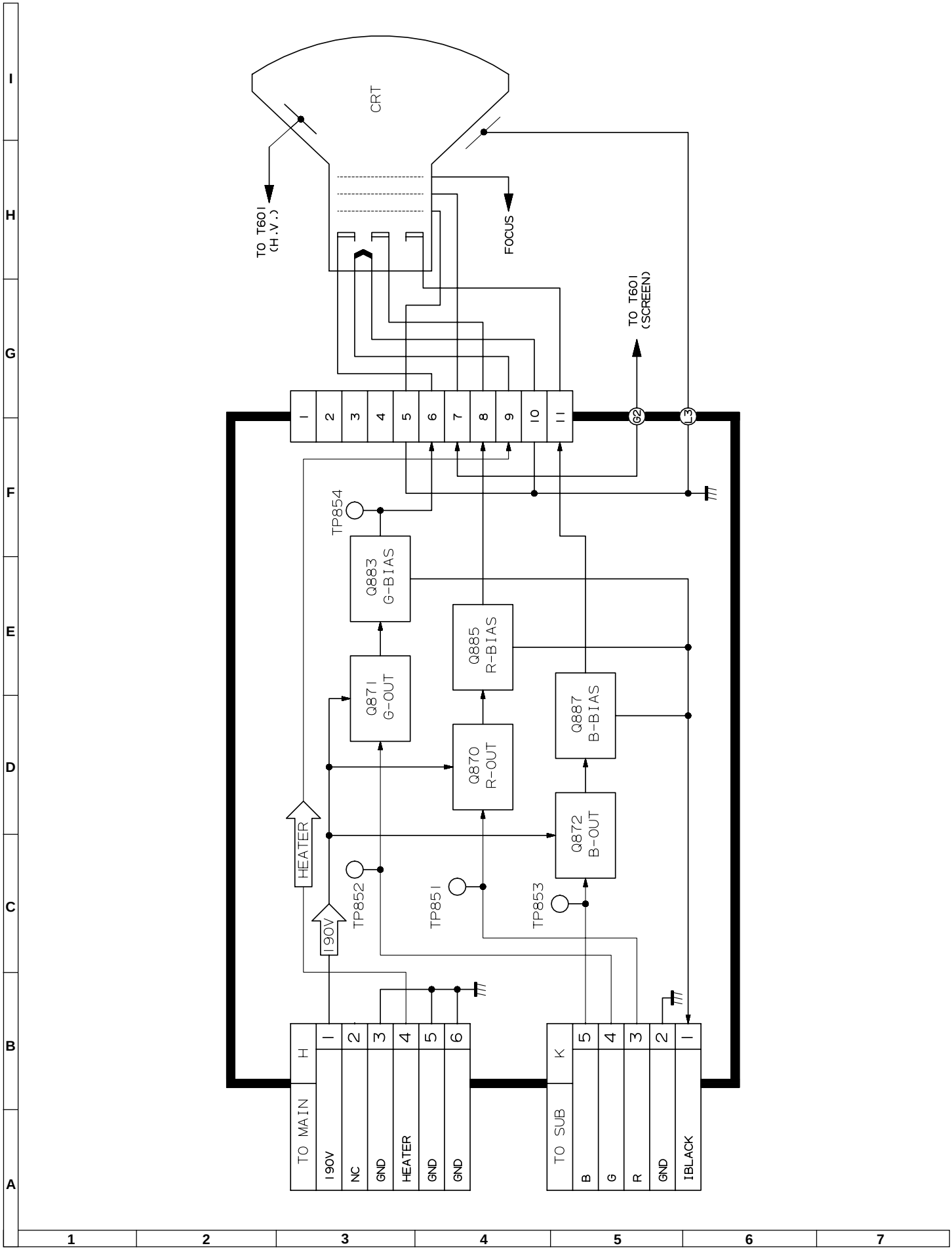
SCHEMATIC DIAGRAM OF MOTHER UNIT (F7340N2, 00 Version)



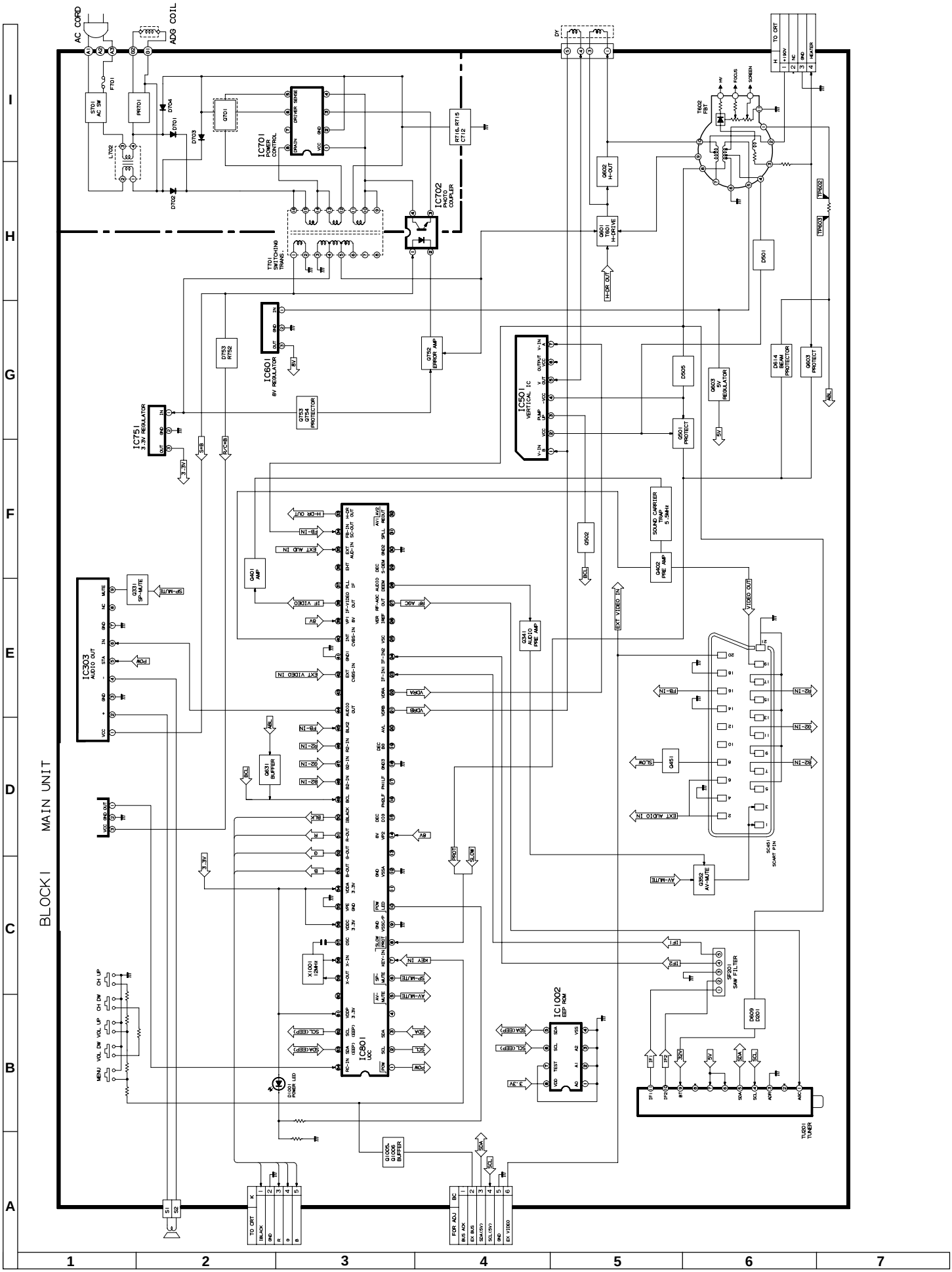
SCHEMATIC DIAGRAM OF CRT (F7341N0, 00 Version)



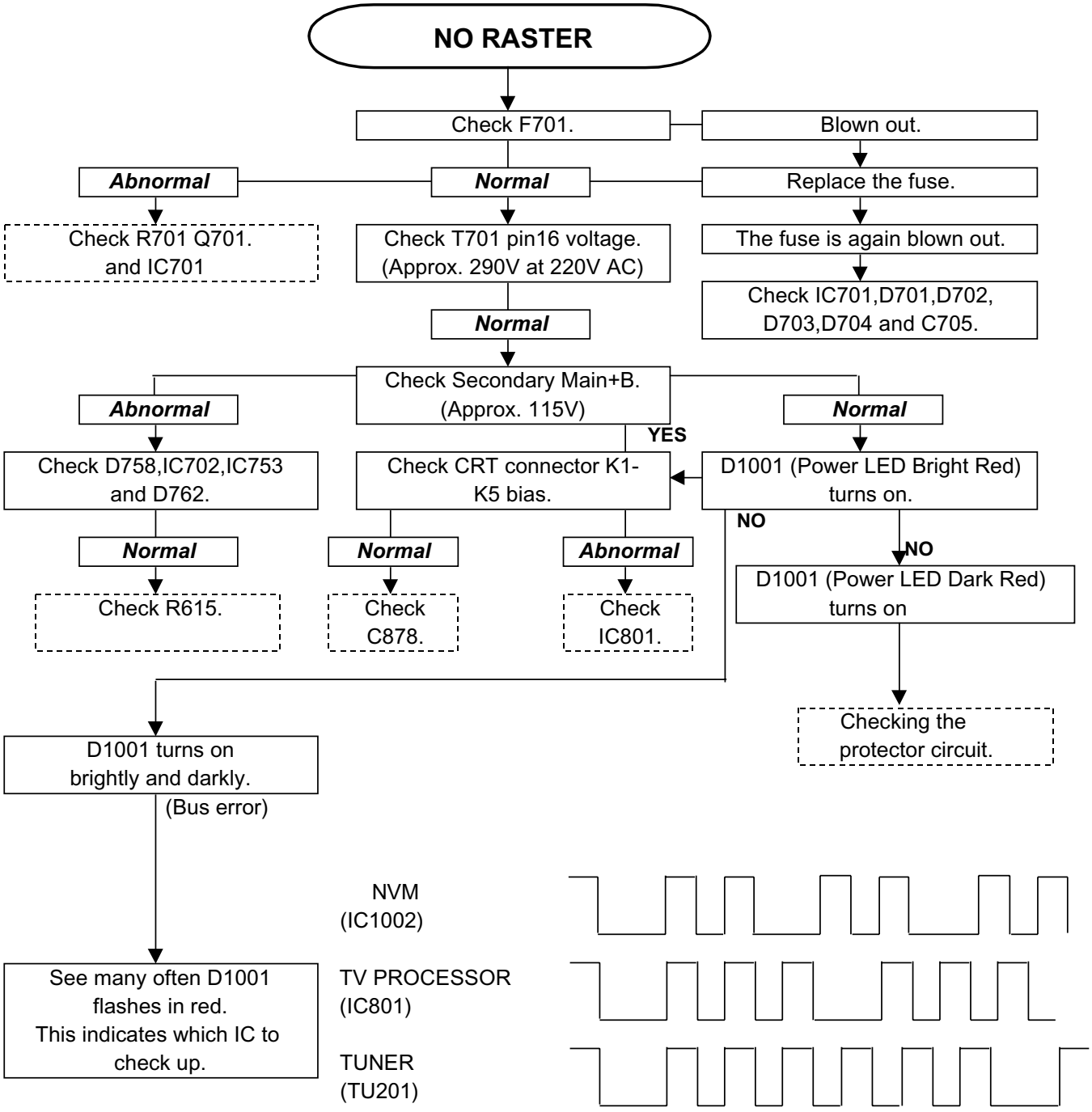
CRT UNIT BLOCK DIAGRAM



MOTHER UNIT BLOCK DIAGRAM



TROUBLESHOOTING TABLES.



TROUBLESHOOTING TABLES.

NEITHER VERTICAL NOR HORIZONTAL SYNCHRONIZATION

CIRCUIT TO BE CHECKED:
Sync. Separator Circuit.

Check pin33 and 34 of IC801.

DEFECTIVE VERTICEL AMP. AND VERTICAL LINEARITY

Readjusted vertical size. (Bass Data)

Vertical linearity and size is abnormal.

Check R502,R505

NO VERTICAL SCAN

Check IC501 bias.

Normal

Check C502 and C514.

Abnormal

Check IC501.

NO SPECIFIC COLOUR

Is some colour produced in B/W broadcast reception?

NO

Check IC801,R801,R802, R803,D804,D805,D806 and Q801.

YES

Is the white balance properly adjusted?

NO

Readjusted the white balance.

The picture colour is cyan.

Check Q870,Q885 and their adjacent circuits.

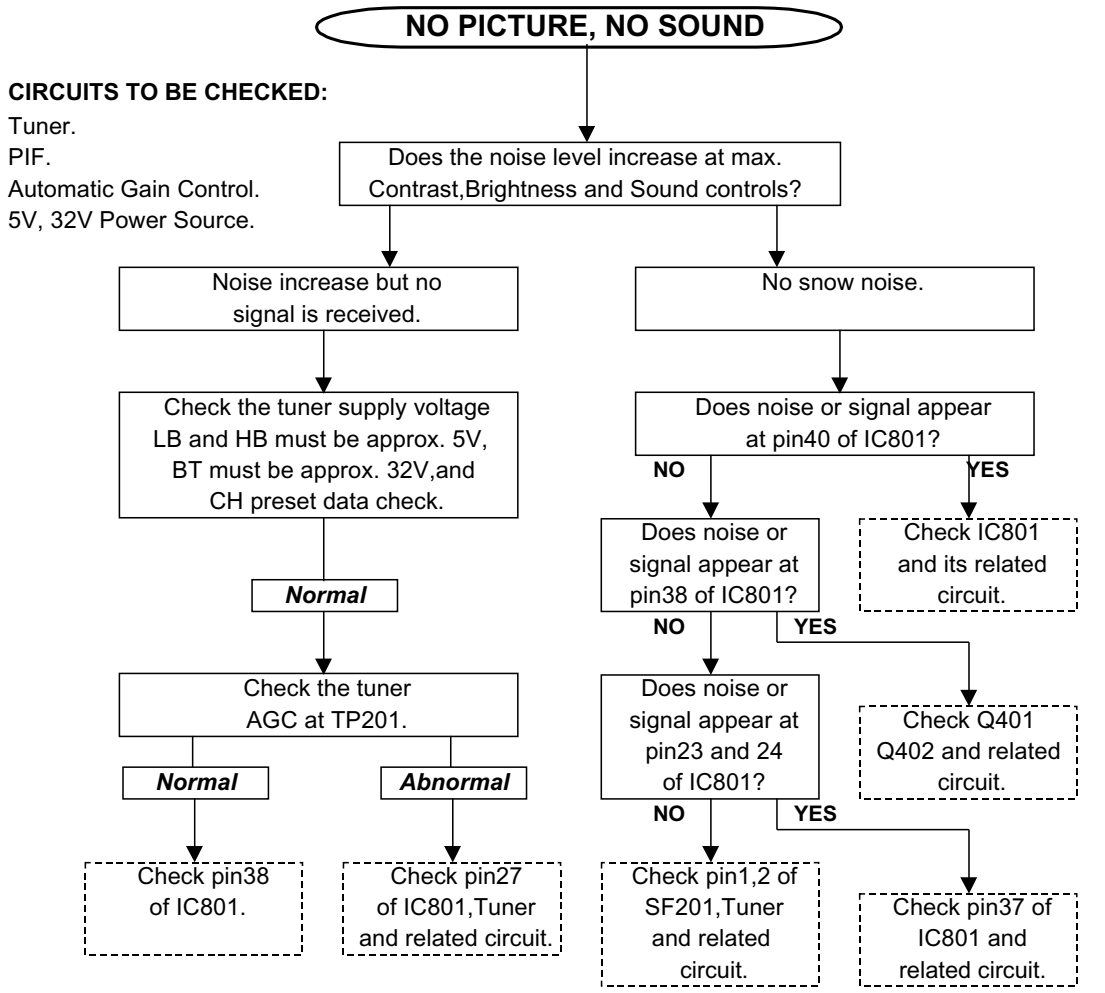
The picture colour is magenta.

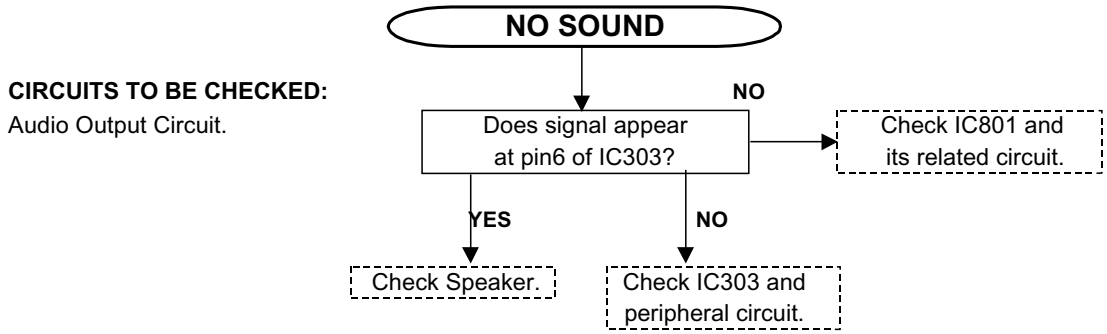
Check Q871,Q883 and their adjacent circuits.

The picture colour is yellow.

Check Q872,Q887 and their adjacent circuits.

TROUBLESHOOTING TABLES.


NO PICTURE, NO SOUND
CIRCUITS TO BE CHECKED:
Tuner.
PIF.
Automatic Gain Control.
5V, 32V Power Source.
Does the noise level increase at max. Contrast,Brightness and Sound controls?
Noise increase but no signal is received.
No snow noise.
Check the tuner supply voltage LB and HB must be approx. 5V, BT must be approx. 32V,and CH preset data check.
Does noise or signal appear at pin40 of IC801?
NO
YES
Normal
Does noise or signal appear at pin38 of IC801?
Check IC801 and its related circuit.
NO
YES
Check the tuner AGC at TP201.
Does noise or signal appear at pin23 and 24 of IC801?
Check Q401 Q402 and related circuit.
Normal
Abnormal
NO
YES
Check pin38 of IC801.
Check pin27 of IC801,Tuner and related circuit.
Check pin1,2 of SF201,Tuner and related circuit.
Check pin37 of IC801 and related circuit.



PARTS LISTING

REPLACEMENT PARTS

Replacement parts which have special safety characteristics are identified in this manual. Electrical components having such features are identified by in the Replacement Part List.
The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended is not permitted.
Replacement parts not shown in this service manual may create shock fire, or other hazards.

HOW TO ORDER REPLACEMENT PARTS

To have your order completed promplty and correctly please supply the following information.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION
5. CODE
6. QUANTITY

MARK *: SPARE PARTS DELIVERY SECTION

	REF No.	PARTS	DESCRIPTION	*	SN CODE	EX CODE
			PICTURE TUBE			
⚠		VB51EFS83912E	CRT 21" THA51EFS83X391+DYW	S	BN	CD
⚠		RCILG0408BMZZ	DEGUSSING COIL TODAIMUSEN	S	AH	AP
	PRINTED WIRING BOARDS (Not replacement item)					
		DUNTK7340CJV0	ADJUST CHASSIS 21HT15S	S	--	--
		DUNTK7341BMV0	CRT UNIT INS HAND 21HT15S	S	AA	AP
	PWB-A		**MOTHER UNIT**			
			TUNER			
	TU 0201	VTUCTF5511+++	TUNER THOMSON	S	AA	AZ
			INTEGRATED CIRCUITS			
	IC 0303	VHIAN7523++-1	IC AN7523 MATSUSHITA	S	AA	AG
	IC 0501	VHIAN5522++-1	IC AN5523 MATSUSHITA	S	AA	AG
	IC 0601	VHIKA7808AP-1	IC KIA7808API KOREA ELECTRONICS	S	AA	AD
	IC 0701	VHITEA1507/-1	IC TEA1507P/N1 PHILIPS	S	AA	AH
⚠	IC 0702	RH-FX0008GEZZ	P/COUPLER RANK-S SHARP	S	AA	AD
	IC 0751	VHITA48M033-1	IC TA48M033F(S) TOSHIBA	S	AA	AF
	IC 0801	RH-IX3559CEZZ	IC TDA9350PS/N2/2/0442 P/N TXT 48K MONO	S	AA	BE
	IC 1002	VHIM24C08W6-1	IC M24C08-WMN6T ST MICRO	S	AA	AF
			TRANSISTORS			
	Q 0331	VS2SC2412KQ-1	TRT 2SC2412 ROHM	S	AA	AA
	Q 0341	VS2SC2412KQ-1	TRT 2SC2412 ROHM	S	AA	AA
	Q 0342	VS2SC2412KQ-1	TRT 2SC2412 ROHM	S	AA	AA
	Q 0351	VS2SC2412KQ-1	TRT 2SC2412 ROHM	S	AA	AA
	Q 0352	VS2SC2412KQ-1	TRT 2SC2412 ROHM	S	AA	AA
	Q 0401	VS2SC2412KQ-1	TRT 2SC2412 ROHM	S	AA	AA
	Q 0402	VS2SC2412KQ-1	TRT 2SC2412 ROHM	S	AA	AA
	Q 0451	VS2SC2412KQ-1	TRT 2SC2412 ROHM	S	AA	AA
	Q 0501	VS2SC2412KQ-1	TRT 2SC2412 ROHM	S	AA	AA
	Q 0502	VS2SC2412KQ-1	TRT 2SC2412 ROHM	S	AA	AA
	Q 0601	VS2SC2482//-1	TRT 2SC2482 TOSHIBA	S	AA	AB
	Q 0602	VS2SD2586//1E	TRT 2SD2586 TOSHIBA	S	AA	AV
	Q 0603	VS2SC2412KQ-1	TRT 2SC2412 ROHM	S	AA	AA
	Q 0604	VS2SC1815GW-1	TRT NPN 60V 150MA 400MW	S	AA	AA
	Q 0605	VS2SA1037KQ-1	TRT BC807 SMD	S	AA	AA
	Q 0631	VS2SA1037KQ-1	TRT BC807 SMD	S	AA	AA
	Q 0701	VSSTP4NC80Z1E	MOS FET STP4NC80ZFP TOMEN	S	AA	AH
	Q 0752	VS2SC1815GW-1	TRT NPN 60V 150MA 400MW	S	AA	AA
	Q 0753	VS2SC2412KQ-1	TRT 2SC2412 ROHM	S	AA	AA
	Q 0754	VS2SC2412KQ-1	TRT 2SC2412 ROHM	S	AA	AA
	Q 1005	VS2SC2412KQ-1	TRT 2SC2412 ROHM	S	AA	AA
	Q 1006	VS2SC2412KQ-1	TRT 2SC2412 ROHM	S	AA	AA
			DIODES			
	D 0201	RH-EX0676GEZZ	ZENER DIODE MTZJ33CT ROHM	S	AA	AA
	D 0303	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0351	RH-EX1399CEZZ	ZENER DIODE UDZSTE-179.1B WAKO ELECTRIC	S	AA	AA
	D 0451	RH-EX1399CEZZ	ZENER DIODE UDZSTE-179.1B WAKO ELECTRIC	S	AA	AA
	D 0452	RH-EX1399CEZZ	ZENER DIODE UDZSTE-179.1B WAKO ELECTRIC	S	AA	AA
	D 0453	RH-EX1399CEZZ	ZENER DIODE UDZSTE-179.1B WAKO ELECTRIC	S	AA	AA
	D 0454	RH-EX1399CEZZ	ZENER DIODE UDZSTE-179.1B WAKO ELECTRIC	S	AA	AA
	D 0456	RH-EX1399CEZZ	ZENER DIODE UDZSTE-179.1B WAKO ELECTRIC	S	AA	AA
	D 0457	RH-EX1399CEZZ	ZENER DIODE UDZSTE-179.1B WAKO ELECTRIC	S	AA	AA
	D 0501	RH-DX0131CEZZ	DIODE EU-1 SANKEN	S	AA	AB
	D 0502	RH-DX0441CEZZ	DIODE IN4002G23 GENERAL INSTRUMENT	S	AA	AA
	D 0503	RH-EX0684GEZZ	ZENER DIODE MTZJ39BT ROHM	S	AA	AA
	D 0504	RH-EX0684GEZZ	ZENER DIODE MTZJ39BT ROHM	S	AA	AA
	D 0505	RH-DX0131CEZZ	DIODE EU-1 SANKEN	S	AA	AB
	D 0507	RH-EX0603GEZZ	Z.DIODE MTZJ 3.9A	S	AA	AA
	D 0508	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0509	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0510	RH-EX0627GEZZ	ZENER DIODE MTZJ8.2BT ROHM	S	AA	AA
	D 0601	RH-DX0302CEZZ	DIODE UZA	S	AA	AB
	D 0602	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0603	RH-DX0131CEZZ	DIODE EU-1 SANKEN	S	AA	AB
	D 0604	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0605	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0606	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0607	RH-EX0652GEZZ	ZENER DIODE MTZJ18B ROHM	S	AA	AA
	D 0608	RH-DX0577BMZZ	DIODE 1N4935 ACPA	S	AB	AE
	D 0609	VHD1SS244//-1	SW DIODE 1SS244T-72	S	AA	AA
	D 0610	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0611	RH-EX0615GEZZ	ZENER DIODE 5.6V	S	AA	AA
	D 0612	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0614	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0615	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0631	RH-EX0627GEZZ	ZENER DIODE MTZJ8.2BT ROHM	S	AA	AA
	D 0632	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0701	RH-DX0571BMZZ	DIODE 1N4005 ACPA	S	AA	AA
	D 0702	RH-DX0571BMZZ	DIODE 1N4005 ACPA	S	AA	AA
	D 0703	RH-DX0571BMZZ	DIODE 1N4005 ACPA	S	AA	AA
	D 0704	RH-DX0571BMZZ	DIODE 1N4005 ACPA	S	AA	AA
	D 0705	VHD1SS244//-1	SW DIODE 1SS244T-72	S	AA	AA
	D 0708	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0709	RH-EX0656GEZZ	ZENER DIODE MTZJ20C ROHM	S	AA	AA
	D 0751	RH-DX0302CEZZ	DIODE UZA	S	AA	AB
	D 0752	RH-DX0064GEZZ	DIODE AK04V1 SANKEN	S	AA	AB
	D 0753	RH-EX0612GEZZ	ZENER DIODE MTZJ5.1BT ROHM	S	AA	AA
	D 0754	RH-DX0302CEZZ	DIODE UZA	S	AA	AB
	D 0755	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0756	RH-EX0615GEZZ	ZENER DIODE 5.6V	S	AA	AA
	D 0759	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0804	RH-EX1399CEZZ	ZENER DIODE UDZSTE-179.1B WAKO ELECTRIC	S	AA	AA
	D 0805	RH-EX1399CEZZ	ZENER DIODE UDZSTE-179.1B WAKO ELECTRIC	S	AA	AA
	D 0806	RH-EX1399CEZZ	ZENER DIODE UDZSTE-179.1B WAKO ELECTRIC	S	AA	AA
	D 0807	RH-EX1399CEZZ	ZENER DIODE UDZSTE-179.1B WAKO ELECTRIC	S	AA	AA
	D 1001	RH-PX0013PEZZ	LED L-53ID-13.95L/F	S	AA	AB
			PACKAGED CIRCUITS			
	PR 0701	RMPTP0001BMZZ	PTC B59250-C1080-B70	S	AA	AD
	X 1001	RCRSB0300CEZZ	CRYSTAL HC-49/U-S 12000KHz-A1 MURATA	S	AA	AF
			COILS			
	L 0201	VP-DF270K0000	PEAK COIL 27UH 10%	S	AA	AA
	L 0204	VP-DF270K0000	PEAK COIL 27UH 10%	S	AA	AA
	L 0308	VP-CF3R3K0000	PEAK COIL 3.3UH 10%	S	AB	AB
	L 0351	VP-DF3R3K0000	PEAK COIL 3,3UH 10%	S	AB	AB
	L 0353	VP-DF3R3K0000	PEAK COIL 3,3UH 10%	S	AB	AB
	L 0354	VP-DF3R3K0000	PEAK COIL 3,3UH 10%	S	AB	AB
	L 0403	VP-XF120K0000	PEAK COIL 12UH 10% 1/8W	S	AA	AB
	L 0451	VP-DF3R3K0000	PEAK COIL 3,3UH 10%	S	AB	AB
	L 0602	RCILP0225CEZZ	COIL SL_A TOKYO	S	AA	AC
	L 0701	RCILF0111BMZZ	COIL HR-19043	S	AE	AL
	L 0801	VP-XF100K0000	PEAK COIL 10UH 10% 1/8W	S	AA	AA
	L 0802	VP-XF100K0000	PEAK COIL 10UH 10% 1/8W	S	AA	AA
	L 1002	VP-XF100K0000	PEAK COIL 10UH 10% 1/8W	S	AA	AA
	L 3030	VP-CF3R3K0000	PEAK COIL 3.3UH 10%	S	AB	AB
			CERAMIC FILTERS			
	CF 0401	RFILC0020CEZZ	FILTER SIF TRAP (TAPED)	S	AE	AE
	SF 0201	RFILC0274BMZZ	SAW FILTER G1984 SIEMENS	S	AF	AK
			TRANSFORMERS			
	T 0601	RTRNZ0026PEZZ	DRIVER TRANSFORMER	S	AA	AF

	REF No.	PARTS	DESCRIPTION	*	SN CODE	EX CODE
⚠	T 0602	RTRNF2053CEZZ	FBT BSC21-2643S SHENZHEN	S	AA	AY
⚠	T 0701	RTRNW0005CEZZ	SMT TABUCHI	S	AA	AP
			CAPACITORS			
	C 0201	VCEA0A1CW476M	ELEC C 47UF 20% 16V	S	--	--
	C 0202	VCEA0A1AW107M	ELEC C 100UF 20% 10V	S	--	--
	C 0204	VCEA0A1HW106M	ELEC C 10UF 20% 50V	S	AA	AA
	C 0206	VCKYCY1HF223Z	SC CAPACITOR 0.022UF 50V TAPED	S	AA	AA
	C 0207	VCKYCY1HB472K	S.CHIP CAP 4700PF/50V T	S	AA	AA
	C 0208	VCKYCY1HB821K	GRM39B 821K 50 (1608)SMD CAPACITOR	S	AA	AA
	C 0209	VCKYCY1EF104Z	S CHIP TAPE CAP 0.1UF/25V	S	AA	AA
	C 0210	VCCCCY1HH220J	S. CHIP CAP 22PF/50V TAPED	S	AA	AA
	C 0211	VCKYPA1HF103Z	C.CAPACITOR 0.01U-F 50V	S	AA	AA
	C 0212	VCKYPA1HF103Z	C.CAPACITOR 0.01U-F 50V	S	AA	AA
	C 0213	VCCCPA1HH220J	C CAPACITOR 22PF 50V	S	AA	AA
	C 0302	VCEA0A1CW106M	ELEC C 10UF 20% 16V	S	--	--
	C 0305	VCEA0A1CW337M	ELEC C 330UF 20% 16V	S	AA	AA
	C 0307	VCEA0A1CW226M	ELEC C 22UF 20% 16V	S	--	--
	C 0308	VCKYCY1HF103Z	CHIP CAP 0.01UF/50V	S	AA	AA
	C 0311	VCKYCY1HB102K	S. CHIP CAP 0.001UF/50V	S	AA	AA
	C 0320	VCKYCY1HB102K	S. CHIP CAP 0.001UF/50V	S	AA	AA
	C 0321	VCKYPA1HF103Z	C.CAPACITOR 0.01U-F 50V	S	AA	AA
	C 0331	VCEA0A1HW225M	ELEC C 2,2UF 20% 50V	S	--	--
	C 0341	VCKYCY1HB332K	s.chip cap 3300pf /50v	S	AA	AA
	C 0342	VCEA0A1CW106M	ELEC C 10UF 20% 16V	S	--	--
	C 0343	VCEA0A1CW106M	ELEC C 10UF 20% 16V	S	--	--
	C 0345	VCKYCY1HB222K	S CHIP CAPACITOR 0.0022UF/50V TAPED	S	AA	AA
	C 0346	VCKYCY1HF103Z	CHIP CAP 0.01UF/50V	S	AA	AA
	C 0347	VCKYPA1HF103Z	C.CAPACITOR 0.01U-F 50V	S	AA	AA
	C 0348	VCEA0A1HW105M	ELEC C 1UF 20% 50V	S	--	--
	C 0351	VCKYCY1HB102K	S. CHIP CAP 0.001UF/50V	S	AA	AA
	C 0352	VCEA0A1CW107M	ELEC C 100UF 20% 16V	S	--	--
	C 0354	VCEA0A1CW107M	ELEC C 100UF 20% 16V	S	--	--
	C 0359	VCKYCY1HB102K	S. CHIP CAP 0.001UF/50V	S	AA	AA
	C 0361	VCKYCY1HB102K	S. CHIP CAP 0.001UF/50V	S	AA	AA
	C 0362	VCEA0A1CW106M	ELEC C 10UF 20% 16V	S	--	--
	C 0363	VCKYCY1HB102K	S. CHIP CAP 0.001UF/50V	S	AA	AA
	C 0402	VCCCCY1HH220J	S. CHIP CAP 22PF/50V TAPED	S	AA	AA
	C 0403	VCKYCY1HF103Z	CHIP CAP 0.01UF/50V	S	AA	AA
	C 0404	VCEA0A1CW106M	ELEC C 10UF 20% 16V	S	--	--
	C 0431	VCKYCY1HF223Z	SC CAPACITOR 0.022UF 50V TAPED	S	AA	AA
	C 0432	VCKYCY1HB102K	S. CHIP CAP 0.001UF/50V	S	AA	AA
	C 0433	VCKYCY1EF104Z	S CHIP TAPE CAP 0.1UF/25V	S	AA	AA
	C 0451	VCEA0A1CW106M	ELEC C 10UF 20% 16V	S	--	--
	C 0453	VCKYCY1HF103Z	CHIP CAP 0.01UF/50V	S	AA	AA
	C 0502	VCEA0A1EW477M	ELEC C 470UF 20% 25V	S	--	--
	C 0504	VCKYPA1HB102K	C.CAPACITOR 1000PF/50V	S	AA	AA
	C 0505	VCEA0A1HW107M	ELEC C 100UF 20% 50V	S	AA	AA
	C 0506	VCKYPA1HB102K	C.CAPACITOR 1000PF/50V	S	AA	AA
	C 0507	VCKYCY1HF103Z	CHIP CAP 0.01UF/50V	S	AA	AA
	C 0508	RC-FZ0272CEZZ	C POL P 0,39UF 100V	S	AA	AC
	C 0509	VCQYTA2AA563J	POL FILM C 56NF 5% 100V	S	AA	AB
	C 0511	VCKYPA1HB102K	C.CAPACITOR 1000PF/50V	S	AA	AA
	C 0512	VCKYCY1HF103Z	CHIP CAP 0.01UF/50V	S	AA	AA
	C 0513	VCKYPA2HB102K	CERAM C 1NF 10% 500V	S	AA	AA
	C 0514	VCEA0A1EW477M	ELEC C 470UF 20% 25V	S	--	--
	C 0515	VCQYTA1HM103J	F. CAPACITOR 0.01UF/50V	S	--	--
	C 0519	VCKYPA1HB102K	C.CAPACITOR 1000PF/50V	S	AA	AA
	C 0520	VCKYPA1HB102K	C.CAPACITOR 1000PF/50V	S	AA	AA
	C 0531	VCKYCY1HB102K	S. CHIP CAP 0.001UF/50V	S	AA	AA
	C 0532	VCKYCY1HB102K	S. CHIP CAP 0.001UF/50V	S	AA	AA
	C 0533	VCQYTA1HM104J	F. CAPACITOR 0.1 UF 50 V	S	AA	AB
	C 0599	VCKYPA1HB102K	C.CAPACITOR 1000PF/50V	S	AA	AA
	C 0602	VCEA0A1CW477M	ELEC C 470UF 20% 16V	S	--	--
	C 0603	VCEA0A1CW107M	ELEC C 100UF 20% 16V	S	--	--
	C 0604	VCKYPA1HF103Z	C.CAPACITOR 0.01U-F 50V	S	AA	AA
	C 0605	VCEA0A1AW227M	ELEC C 220UF 20% 10V	S	--	--
	C 0606	VCEA0A1CW107M	ELEC C 100UF 20% 16V	S	--	--
	C 0607	VCKYPA1HF103Z	C.CAPACITOR 0.01U-F 50V	S	AA	AA
	C 0608	VCKYCY1EF104Z	S CHIP TAPE CAP 0.1UF/25V	S	AA	AA
	C 0609	VCKYPA2HB102K	CERAM C 1NF 10% 500V	S	AA	AA
	C 0610	VCFYSB2EB823J	POL FILM C 82NF 5% 100V	S	AA	AD
	C 0611	VCFPVC3CA912H	PP FILM C 9,1NF 50% 1600V	S	AA	AD
	C 0614	VCFPVC2DB564J	PP FILM C 560NF 5% 200V	S	--	--
	C 0615	RC-EZ0724CEZZ	ELEC C KMF160VB-100MMC NICHICON	S	AA	AG
	C 0616	VCQYTA1HM104J	F. CAPACITOR 0.1 UF 50 V	S	AA	AB
	C 0617	VCEA0A1HW105M	ELEC C 1UF 20% 50V	S	--	--
	C 0619	VCEA0A1HW106M	ELEC C 10UF 20% 50V	S	AA	AA
	C 0621	VCEA0A2CW105M	ELEC C 1UF 20% 160V	S	--	--
	C 0622	VCEA0A1CW227M	E CAPACITOR 220UF 16V 6.3x11	S	--	--
	C 0631	VCKYCY1EF104Z	S CHIP TAPE CAP 0.1UF/25V	S	AA	AA
	C 0632	VCKYCY1HB222K	S CHIP CAPACITOR 0.0022UF/50V TAPED	S	AA	AA
	C 0633	VCEA0A1CW107M	ELEC C 100UF 20% 16V	S	--	--
⚠	C 0701	RC-FZ0176BMZZ	POL C B81130 100NF 275V X2	S	AA	AB
	C 0702	RC-KZ0029CEZZ	CERAM C 10NF 80,20% 250V	S	AC	AC
	C 0703	RC-KZ0029CEZZ	CERAM C 10NF 80,20% 250V	S	AC	AC
	C 0704	RC-KZ0029CEZZ	CERAM C 10NF 80,20% 250V	S	AC	AC
	C 0705	RC-EZ0150BMZZ	ELEC C 100uF 400V LPN100M2GN JAMICON	S	AA	AM
	C 0707	VCEA0A1EW107M	E. CAPACITOR 100UF 25V 6.3x11	S	AA	AA
	C 0708	VCQYTA1HM104J	F. CAPACITOR 0.1 UF 50 V	S	AA	AB
	C 0709	VCFYFA1HA474J	FILM CAPACITOR 474 MAT	S	AA	AB
	C 0710	RC-KZ0040CEZZ	CERAM C 820PF 2KV	S	AD	AD
⚠	C 0712	RC-KZ0105GEZZ	C. CAP 2200PF/4KV-KX	S	AA	AC
	C 0713	VCKYPA1HB102K	C.CAPACITOR 1000PF/50V	S	AA	AA
	C 0716	VCKYPA2HB102K	CERAM C 1NF 10% 500V	S	AA	AA
	C 0751	RC-KZ0299CEZZ	CERAM C DE1105-979BN821K2K-A3 MURATA	S	AA	AC
	C 0752	RC-EZ0724CEZZ	ELEC C KMF160VB-100MMC NICHICON	S	AA	AG
	C 0753	VCKYPA1HB102K	C.CAPACITOR 1000PF/50V	S	AA	AA
	C 0754	VCEA0A1CW108M	ELEC C 1000MF 16V 10X16MM	S	AA	AB
	C 0755	VCEA0A1CW227M	E CAPACITOR 220UF 16V 6.3x11	S	--	--
	C 0756	VCEA0A0JW227M	E CAPACITOR 220UF/6.3V-5X11	S	--	--
	C 0757	VCKYPA2HB102K	CERAM C 1NF 10% 500V	S	AA	AA
	C 0758	VCEA0A1CW477M	ELEC C 470UF 20% 16V	S	--	--
	C 0759	VCKYPA1HB102K	C.CAPACITOR 1000PF/50V	S	AA	AA
	C 0761	VCKYCY1EF104Z	S CHIP TAPE CAP 0.1UF/25V	S	AA	AA
	C 0762	VCCCPA1HH680J	CERAM C 68PF 5% 50V	S	AA	AA
	C 0764	VCEA0A1CW107M	ELEC C 100UF 20% 16V	S	--	--
	C 0765	VCEA0A1CW107M	ELEC C 100UF 20% 16V	S	--	--
	C 0766	VCKYPA1HF103Z	C.CAPACITOR 0.01U-F 50V	S	AA	AA
	C 0801	VCEA0A1CW227M	E CAPACITOR 220UF 16V 6.3x11	S	--	--
	C 0803	VCFYFA1HA224J	PP FILM C 220NF 5% 50V	S	AA	AC
	C 0804	VCFYFA1HA224J	PP FILM C 220NF 5% 50V	S	AA	AC
	C 0805	VCKYCY1HB222K	S CHIP CAPACITOR 0.0022UF/50V TAPED	S	AA	AA
	C 0806	VCEA0A1HW105M	ELEC C 1UF 20% 50V	S	--	--
	C 0807	VCKYCY1HB472K	S.CHIP CAP 4700PF/50V T	S	AA	AA
	C 0808	VCKYCY1HF223Z	SC CAPACITOR 0.022UF 50V TAPED	S	AA	AA
	C 0809	VCEA0A1CW106M	ELEC C 10UF 20% 16V	S	--	--
	C 0810	VCEA0A1HW474M	ELEC C 0,47UF 20% 50V	S	--	--
	C 0811	VCKYCY1HB102K	S. CHIP CAP 0.001UF/50V	S	AA	AA
	C 0812	VCKYCY1HB102K	S. CHIP CAP 0.001UF/50V	S	AA	AA
	C 0813	VCKYCY1HB102K	S. CHIP CAP 0.001UF/50V	S	AA	AA
	C 0814	VCKYCY1HB561K	S. CAPACITOR 560PF/50V	S	AA	AA
	C 0815	VCEA0A1CW227M	E CAPACITOR 220UF 16V 6.3x11	S	--	--
	C 0817	VCKYCY1HF103Z	CHIP CAP 0.01UF/50V	S	AA	AA
	C 0818	VCKYCY1HF103Z	CHIP CAP 0.01UF/50V	S	AA	AA
	C 0819	VCEA0A1CW227M	E CAPACITOR 220UF 16V 6.3x11	S	--	--
	C 0820	VCKYPA1HF103Z	C.CAPACITOR 0.01U-F 50V	S	AA	AA
	C 0821	VCKYPA1HF103Z	C.CAPACITOR 0.01U-F 50V	S	AA	AA
	C 1001	VCCCCY1HH220J	S. CHIP CAP 22PF/50V TAPED	S	AA	AA
	C 1002	VCCCCY1HH220J	S. CHIP CAP 22PF/50V TAPED	S	AA	AA
	C 1006	VCKYCY1HF223Z	SC CAPACITOR 0.022UF 50V TAPED	S	AA	AA
	C 1009	VCEA0A0JW107M	ELEC C 100UF 20% 6,3V	S	AA	AA
	C 1011	VCEA0A0JW107M	ELEC C 100UF 20% 6,3V	S	AA	AA
	C 1012	VCKYCY1EF104Z	S CHIP TAPE CAP 0.1UF/25V	S	AA	AA
	C 1013	VCKYCY1HF103Z	CHIP CAP 0.01UF/50V	S	AA	AA
	C 1014	VCEA0A0JW107M	ELEC C 100UF 20% 6,3V	S	AA	AA
	C 1015	VCEA0A1CW106M	ELEC C 10UF 20% 16V	S	--	--
	C 1017	VCKYCY1HF103Z	CHIP CAP 0.01UF/50V	S	AA	AA
	C 1018	VCKYCY1HF103Z	CHIP CAP 0.01UF/50V	S	AA	AA
			RESISTORS			
	R 0201	VRD-RA2BE332J	RES 3,3KOHM 5% 1/8W	S	AA	AA
	R 0202	VRS-CY1JF681J	S. CHIP RES. 680-OHM TAPED	S	AA	AA
	R 0208	VRS-CY1JF102J	S.CHIP RES TAPE 1K OHM	S	AA	AA
	R 0209	VRS-CY1JF391J	SURFACE MOUNT CHIP RESISTOR 390 OHM	S	AA	AA
	R 0290	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	R 0302	VRS-CY1JF472J	S. RES. 4.7K OHM TAPED	S	AA	AA
	R 0303	VRD-RA2BE331J	RES 330 OHM 5% 1/8W	S	AA	AA
	R 0306	VRS-CY1JF392J	S. CHIP RES. 3.9K-OHM TAPED	S	AA	AA

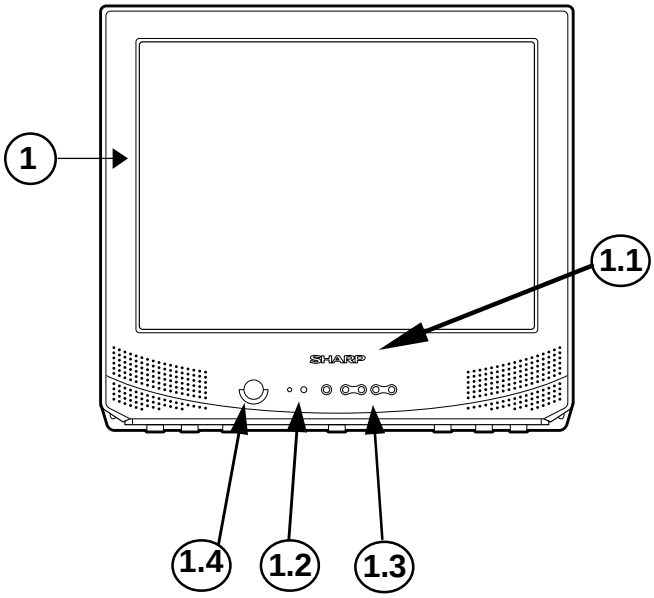
	REF No.	PARTS	DESCRIPTION	*	SN CODE	EX CODE
	R 0310	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 0312	VRS-CY1JF153J	S CHIP RES. 15K-OHM TAPED	S	AA	AA
	R 0313	VRS-CY1JF223J	S.CHOP REG 22K-OHM T	S	AA	AA
	R 0331	VRS-CY1JF103J	S.C. RESISTOR 10K OHM	S	AA	AA
	R 0332	VRS-CY1JF473J	S. CHIP RES 47K-OHM TAPED	S	AA	AA
	R 0333	VRD-RA2BE103J	RES 10KOHM 5% 1/8W	S	AA	AA
	R 0339	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 0340	VRS-CY1JF821J	S. CHIP RES. 820-OHM	S	AA	AA
	R 0341	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 0342	VRS-CY1JF821J	S. CHIP RES. 820-OHM	S	AA	AA
	R 0343	VRS-CY1JF471J	S. CHIP RES. 470-OHM TAPED	S	AA	AA
	R 0344	VRS-CY1JF102J	S.CHIP RES TAPE 1K OHM	S	AA	AA
	R 0345	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	R 0351	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	R 0352	VRS-CY1JF104J	S. CHIP RES. 100K-OHM TAPED	S	AA	AA
	R 0356	VRS-CY1JF102J	S.CHIP RES TAPE 1K OHM	S	AA	AA
	R 0357	VRS-CY1JF103J	S.C. RESISTOR 10K OHM	S	AA	AA
	R 0359	VRS-CY1JF102J	S.CHIP RES TAPE 1K OHM	S	AA	AA
	R 0360	VRS-CY1JF103J	S.C. RESISTOR 10K OHM	S	AA	AA
	R 0362	VRS-CY1JF472J	S. RES. 4.7K OHM TAPED	S	AA	AA
	R 0363	VRS-CY1JF104J	S. CHIP RES. 100K-OHM TAPED	S	AA	AA
	R 0364	VRS-CY1JF472J	S. RES. 4.7K OHM TAPED	S	AA	AA
	R 0365	VRS-CY1JF104J	S. CHIP RES. 100K-OHM TAPED	S	AA	AA
	R 0366	VRS-CY1JF561J	S. CHIP RES 560-OHM TAPED	S	AA	AA
	R 0390	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	R 0391	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	R 0401	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 0403	VRS-CY1JF102J	S.CHIP RES TAPE 1K OHM	S	AA	AA
	R 0405	VRS-CY1JF181J	S CHIP RES. 180-OHM TAPED	S	AA	AA
	R 0406	VRS-CY1JF102J	S.CHIP RES TAPE 1K OHM	S	AA	AA
	R 0407	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 0408	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 0409	VRD-RA2BE102J	RES 1KOHM 5% 1/8W	S	AA	AA
	R 0451	VRD-RA2EE750J	RES 75 OHM 5% 1/4W	S	AA	AA
	R 0452	VRS-CY1JF104J	S. CHIP RES. 100K-OHM TAPED	S	AA	AA
	R 0453	VRS-CY1JF223J	S.CHOP REG 22K-OHM T	S	AA	AA
	R 0454	VRS-CY1JF562J	S. CHIP RES. 5.6K-OHM TAPED	S	AA	AA
	R 0455	VRD-RA2EE750J	RES 75 OHM 5% 1/4W	S	AA	AA
	R 0456	VRD-RA2EE750J	RES 75 OHM 5% 1/4W	S	AA	AA
	R 0457	VRD-RA2EE750J	RES 75 OHM 5% 1/4W	S	AA	AA
	R 0458	VRS-CY1JF103J	S.C. RESISTOR 10K OHM	S	AA	AA
	R 0459	VRD-RA2EE750J	RES 75 OHM 5% 1/4W	S	AA	AA
	R 0460	VRD-RA2EE750J	RES 75 OHM 5% 1/4W	S	AA	AA
	R 0461	VRD-RA2BE224J	RES 220KOHM 5% 1/8W	S	AA	AA
	R 0490	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	R 0491	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	R 0492	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	R 0501	VRD-RA2BE392J	RES 3,9KOHM 5% 1/8W	S	AA	AA
	R 0502	VRN-VV3DB2R7J	MET FILM R 2,7 OHM 5% 2W	S	AA	AB
	R 0503	VRD-RA2HD331J	RES 330 OHM 5% 1/2W	S	AA	AA
	R 0504	VRS-CY1JF181J	S CHIP RES. 180-OHM TAPED	S	AA	AA
	R 0505	VRD-RA2BE1R0J	RES 1 OHM 5% 1/8W	S	AA	AA
	R 0507	VRS-CY1JF181J	S CHIP RES. 180-OHM TAPED	S	AA	AA
	R 0509	VRD-RA2BE102J	RES 1KOHM 5% 1/8W	S	AA	AA
	R 0511	VRD-RA2HD102J	RES 1KOHM 5% 1/2W	S	AA	AA
	R 0512	VRD-RA2BE100J	RES 10 OHM 5% 1/8W	S	AA	AA
	R 0513	VRD-RA2BE103J	RES 10KOHM 5% 1/8W	S	AA	AA
	R 0514	VRS-CY1JF103J	S.C. RESISTOR 10K OHM	S	AA	AA
	R 0515	VRS-CY1JF153J	S CHIP RES. 15K-OHM TAPED	S	AA	AA
	R 0516	VRS-CY1JF153J	S CHIP RES. 15K-OHM TAPED	S	AA	AA
	R 0517	VRS-CY1JF223J	S.CHOP REG 22K-OHM T	S	AA	AA
	R 0518	VRS-CY1JF334J	S. CHIP RES. 330K-OHM TAPED	S	AA	AA
	R 0531	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 0532	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 0533	VRD-RA2BE393J	RES 39KOHM 5% 1/8W	S	AA	AA
	R 0603	VRD-RA2BE102J	RES 1KOHM 5% 1/8W	S	AA	AA
	R 0604	VRD-RA2HD472J	RES 4.7KOHM 5% 1/2W	S	AA	AA
	R 0605	VRS-KT3LB332J	MET OX RES 3,3KOHM 5% 3W	S	AA	AD
	R 0606	VRD-RA2HD102J	RES 1KOHM 5% 1/2W	S	AA	AA
	R 0607	VRD-RA2BE104J	RES 100KOHM 5% 1/8W	S	AA	AA
	R 0608	VRN-RV3ABR82J	MET FILM R 0,82 OHM 5% 1W	S	AA	AB
	R 0609	VRD-RA2HD101J	RES 100 OHM 5% 1/2W	S	AA	AA
	R 0610	VRS-CY1JF102J	S.CHIP RES TAPE 1K OHM	S	AA	AA
	R 0611	VRS-CY1JF103J	S.C. RESISTOR 10K OHM	S	AA	AA

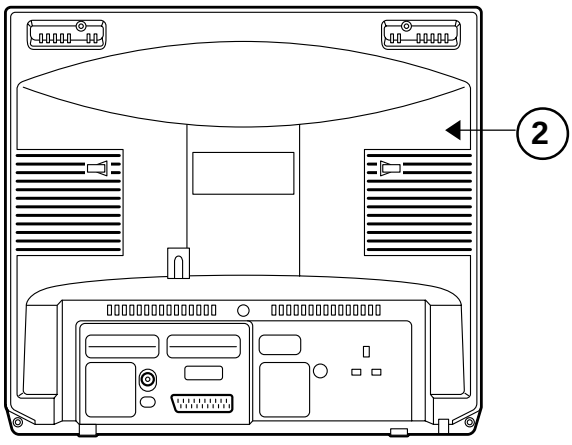
	REF No.	PARTS	DESCRIPTION	*	SN CODE	EX CODE
	R 0612	VRD-RA2BE331J	RES 330 OHM 5% 1/8W	S	AA	AA
	R 0613	VRD-RA2HD184J	RES 180KOHM 5% 1/2W	S	AA	AA
	R 0614	VRD-RA2HD472J	RES 4.7KOHM 5% 1/2W	S	AA	AA
	R 0615	VRD-RA2HD472J	RES 4.7KOHM 5% 1/2W	S	AA	AA
	R 0616	VRD-RA2HD182J	RES 1,8KOHM 5% 1/2W	S	AA	AA
	R 0618	VRD-RA2BE123J	RES 12KOHM 5% 1/8W	S	AA	AA
	R 0619	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	R 0620	VRD-RA2HD220J	RES 22 OHM 5% 1/2W	S	AA	AA
	R 0621	VRD-RA2HD820J	RES 82 OHM 5% 1/2W	S	AA	AA
△	R 0623	VRG-RL2HB562J	FUS RES 5,6KOHM 5% 1/2W	S	AA	AB
	R 0624	VRD-RA2BE123J	RES 12KOHM 5% 1/8W	S	AA	AA
	R 0625	VRD-RA2BE103J	RES 10KOHM 5% 1/8W	S	AA	AA
	R 0626	VRS-CY1JF562J	S. CHIP RES. 5.6K-OHM TAPED	S	AA	AA
	R 0627	VRS-CY1JF103J	S.C. RESISTOR 10K OHM	S	AA	AA
	R 0629	VRD-RA2EE151J	RES 150 OHM 5% 1/4W	S	AA	AA
	R 0630	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 0631	VRD-RA2BE391J	RES 390 OHM 5% 1/8W	S	AA	AA
	R 0632	VRD-RA2BE273J	RES 27KOHM 5% 1/8W	S	AA	AA
	R 0633	VRS-CY1JF822J	S. CHIP RES. 8.2K-OHM TAPED	S	AA	AA
	R 0634	VRS-CY1JF102J	S.CHIP RES TAPE 1K OHM	S	AA	AA
	R 0636	VRS-CY1JF154J	S CHIP RES. 150K-OHM TAPED	S	AA	AA
	R 0637	VRS-CY1JF333J	S. CHIP RES. 33K-OHM TAPED	S	AA	AA
	R 0638	VRS-CY1JF221J	S. CHIP RES. 220-OHM TAPED	S	AA	AA
	R 0639	VRD-RA2BE333J	RES 33KOHM 5% 1/8W	S	AA	AA
	R 0640	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 0701	VRW-KP3HC5R6K	WOUND RES 5,6 OHM 10% 5W	S	AB	AC
	R 0706	VRD-RA2BE122J	RES 1,2KOHM 5% 1/8W	S	AA	AA
	R 0707	VRD-RA2BE393J	RES 39KOHM 5% 1/8W	S	AA	AA
	R 0708	VRD-RA2BE102J	RES 1KOHM 5% 1/8W	S	AA	AA
	R 0710	VRN-VV3ABR27J	MET FILM R .27 OHM 5% 1W	S	AA	AA
	R 0711	VRD-RA2BE270J	RES 27 OHM 5% 1/8W	S	AA	AA
	R 0712	VRD-RA2HD100J	RES 10 OHM 5% 1/2W	S	AA	AA
	R 0713	VRD-RA2BE394J	RES 390KOHM 5% 1/8W	S	AA	AA
△	R 0715	VRC-UA2HG825K	SOLID R 8,2MOHM 10% 1/2W	S	AA	AA
△	R 0716	VRC-UA2HG825K	SOLID R 8,2MOHM 10% 1/2W	S	AA	AA
	R 0718	VRD-RA2BE824J	RES 820KOHM 5% 1/8W	S	AA	AA
	R 0752	VRD-RA2HD102J	RES 1KOHM 5% 1/2W	S	AA	AA
	R 0753	VRN-VV3DB5R6J	MET FILM R 5.6 OHM 5% 2W	S	AA	AA
	R 0761	VRD-RA2BE152J	RES 1,5KOHM 5% 1/8W	S	AA	AA
	R 0762	VRD-RA2HD184J	RES 180KOHM 5% 1/2W	S	AA	AA
	R 0763	VRD-RA2BE822J	RES 8,2KOHM 5% 1/8W	S	AA	AA
	R 0766	VRD-RA2EE183J	RES 18KOHM 5% 1/4W	S	AA	AA
	R 0768	VRD-RA2HD124J	RES 120KOHM 5% 1/2W	S	AA	AA
	R 0770	VRD-RA2HD181J	RES 180 OHM 5% 1/2W	S	AA	AA
	R 0771	VRD-RA2HD181J	RES 180 OHM 5% 1/2W	S	AA	AA
	R 0772	VRS-CY1JF333J	S. CHIP RES. 33K-OHM TAPED	S	AA	AA
	R 0773	VRS-CY1JF153J	S CHIP RES. 15K-OHM TAPED	S	AA	AA
	R 0774	VRS-CY1JF332J	S. CHIP RES. 3.3K-OHM TAPED	S	AA	AA
	R 0801	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 0802	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 0803	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 0804	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 0805	VRS-CY1JF223J	S.CHOP REG 22K-OHM T	S	AA	AA
	R 0806	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 0807	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 0808	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 0809	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 1001	VRS-CY1JF181J	S CHIP RES. 180-OHM TAPED	S	AA	AA
	R 1002	VRS-CY1JF221J	S. CHIP RES. 220-OHM TAPED	S	AA	AA
	R 1003	VRS-CY1JF331J	S CHIP RES TAPE 330 OHM	S	AA	AA
	R 1004	VRS-CY1JF681J	S. CHIP RES. 680-OHM TAPED	S	AA	AA
	R 1005	VRS-CY1JF472J	S. RES. 4.7K OHM TAPED	S	AA	AA
	R 1006	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 1008	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	R 1009	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	R 1014	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 1015	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 1016	VRD-RA2BE332J	RES 3,3KOHM 5% 1/8W	S	AA	AA
	R 1017	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 1018	VRD-RA2BE332J	RES 3,3KOHM 5% 1/8W	S	AA	AA
	R 1019	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 1020	VRS-CY1JF153J	S CHIP RES. 15K-OHM TAPED	S	AA	AA
	R 1022	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 1023	VRD-RA2BE153J	RES 15KOHM 5% 1/8W	S	AA	AA

	REF No.	PARTS	DESCRIPTION	*	SN CODE	EX CODE
	R 1024	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 1025	VRS-CY1JF122J	S. RESISTOR 1.2K OHM	S	AA	AA
	R 1026	VRS-CY1JF224J	S. CHIP RES. 220K-OHM TAPED	S	AA	AA
	R 1027	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 1028	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 1029	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 1033	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 1034	VRD-RA2BE332J	RES 3,3KOHM 5% 1/8W	S	AA	AA
	R 1035	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 1036	VRD-RA2BE332J	RES 3,3KOHM 5% 1/8W	S	AA	AA
	R 1037	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 1038	VRS-CY1JF223J	S.CHOP REG 22K-OHM T	S	AA	AA
	R 1040	VRS-CY1JF152J	S. CHIP RES. 1.5K-OHM	S	AA	AA
	R 1041	VRS-CY1JF152J	S. CHIP RES. 1.5K-OHM	S	AA	AA
	R 1043	VRS-CY1JF562J	S. CHIP RES. 5.6K-OHM TAPED	S	AA	AA
	R 1044	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	R 1047	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	R 1048	VRS-CY1JF391J	SURFACE MOUNT CHIP RESISTOR 390 OHM	S	AA	AA
	R 1052	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	R 1053	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	R 1054	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	R 1056	VRS-CY1JF103J	S.C. RESISTOR 10K OHM	S	AA	AA
	R 1057	VRS-CY1JF472J	S. RES. 4.7K OHM TAPED	S	AA	AA
	R 1058	VRS-CY1JF101J	S. CHIP RES. 100-OHM TAPED	S	AA	AA
	RJ 0001	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0004	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0008	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0009	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0010	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0011	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0019	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0020	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0024	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0026	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0027	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0029	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0031	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0033	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0035	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0036	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0044	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0046	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0047	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0048	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0055	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0056	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0057	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0058	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0059	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0061	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0062	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0064	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0065	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0067	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0068	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0070	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0071	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0072	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0074	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0075	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0079	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
	RJ 0080	VRS-CY1JF000J	S. CHIP RES. 0-OHM TAPED	S	AA	AA
			MISCELLANEOUS PARTS			
⚠	S 0701	QSW-P0591CEZZ	SWITCH SDDFC3-A ALPS	S	AA	AL
	S 1001	QSW-K0079GEZZ	TACTILE SWITCH	S	AA	AA
	S 1002	QSW-K0079GEZZ	TACTILE SWITCH	S	AA	AA
	S 1003	QSW-K0079GEZZ	TACTILE SWITCH	S	AA	AA
	S 1004	QSW-K0079GEZZ	TACTILE SWITCH	S	AA	AA
	S 1005	QSW-K0079GEZZ	TACTILE SWITCH	S	AA	AA
	SC 0451	QSOCZ2107BMZZ	SOCKET	S	AF	AE
	VA 0701	RH-VX0047CEZZ	VARISTOR SIOV-S14K420M4 MATSUSHITA	S	AA	AC
⚠	F 0701	QFS-C3229CEZZ	FUSE S506-3.15A-A1 TOKYO COMPONENTS	S	AA	AB
⚠	F 0751	QFS-J2521CEZZ	FUSE 2,5A 125V LITTELFUSE (KURODA9	S	AC	AD

	REF No.	PARTS	DESCRIPTION	*	SN CODE	EX CODE
	FB 0451	RBLN-0037CEZZ	BALUN FBA04HA90088-00 T/Y	S	AB	AB
	FB 0452	RBLN-0037CEZZ	BALUN FBA04HA90088-00 T/Y	S	AB	AB
	FB 0601	RBLN-0037CEZZ	BALUN FBA04HA90088-00 T/Y	S	AB	AB
	FB 0701	RBLN-0037CEZZ	BALUN FBA04HA90088-00 T/Y	S	AB	AB
	FH 0701	QFSHD1001BMZZ	FUSE HOLD.EYF52BC=PANASON	S	AA	AA
	FH 0702	QFSHD1002BMZZ	FUSE HOLD.EYF52BC=PANASON	S	AA	AA
		QCNW-5969CEZZ	WIRE (H)	S	AA	AD
		QCNW-5970CEZZ	WIRE (K)	S	AA	AD
	P 0301	QPLGN0241CEZZ	PLUG	S	AA	AA
	P 0601	QPLGN0441CEZZ	PLUG 4PIN	S	AA	AA
	P 0602	QPLGN0505CEZZ	PLUG	S	AA	AB
	P 0701	QPLGN0304CEZZ	PLUG	S	AA	AB
	P 0702	QPLGN0207CEZZ	PLUG	S	AA	AA
	P 0801	QPLGN0541CEZZ	PLUG	S	AA	AA
	P 1001	QPLGN0641CEZZ	PLUG	S	AA	AA
	RMC1001	RRMCU0255CEZZ	R/C RECEIVER TSOP1838UH1 ELEKTRA VISHAY	S	AA	AG
	PWB-B		**SOCKET UNIT**			
			TRANSISTORS			
	Q 0870	VSBF422////-1	TRT BF422 PHILIPS	S	AA	AB
	Q 0871	VSBF422////-1	TRT BF422 PHILIPS	S	AA	AB
	Q 0872	VSBF422////-1	TRT BF422 PHILIPS	S	AA	AB
	Q 0883	VSBF421////-1	TRT BF421 PHILIPS	S	AA	AB
	Q 0885	VSBF421////-1	TRT BF421 PHILIPS	S	AA	AB
	Q 0887	VSBF421////-1	TRT BF421 PHILIPS	S	AA	AB
			DIODES			
	D 0811	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0812	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0880	VHD1SS82///1A	DIODE 1SS82-A HITACHI	S	AA	AB
	D 0881	VHD1SS82///1A	DIODE 1SS82-A HITACHI	S	AA	AB
	D 0882	VHD1SS82///1A	DIODE 1SS82-A HITACHI	S	AA	AB
			CAPACITORS			
	C 0871	VCKYPA1HB471K	CERAM C 470PF 10% 50V	S	AA	AA
	C 0872	VCKYPA1HB471K	CERAM C 470PF 10% 50V	S	AA	AA
	C 0873	VCKYPA1HB471K	CERAM C 470PF 10% 50V	S	AA	AA
	C 0875	VCKYPA2HB102K	CERAM C 1NF 10% 500V	S	AA	AA
	C 0876	RC-KZ0150CEZZ	CERAM C DE0707-726E102Z3K-A MURATA	S	AA	AB
	C 0878	VCEAGA2EW336M	ELEC C 33UF 20% 250V	S	AA	AD
	C 0880	VCKYPA1HB471K	CERAM C 470PF 10% 50V	S	AA	AA
	C 0881	VCKYPA1HB471K	CERAM C 470PF 10% 50V	S	AA	AA
	C 0882	VCKYPA1HB471K	CERAM C 470PF 10% 50V	S	AA	AA
			RESISTORS			
	R 0879	VRD-RA2BE471J	RES 470 OHM 5% 1/8W	S	AA	AA
	R 0880	VRD-RA2BE471J	RES 470 OHM 5% 1/8W	S	AA	AA
	R 0881	VRD-RA2BE471J	RES 470 OHM 5% 1/8W	S	AA	AA
	R 0882	VRS-VV3DB153J	MET OX RES 15KOHM 5% 2W	S	AA	AA
	R 0883	VRD-RA2HD272J	RES 2,7KOHM 5% 1/2W	S	AA	AA
	R 0884	VRS-VV3DB153J	MET OX RES 15KOHM 5% 2W	S	AA	AA
	R 0885	VRD-RA2HD272J	RES 2,7KOHM 5% 1/2W	S	AA	AA
	R 0886	VRS-VV3DB153J	MET OX RES 15KOHM 5% 2W	S	AA	AA
	R 0887	VRD-RA2HD272J	RES 2,7KOHM 5% 1/2W	S	AA	AA
	R 0892	VRD-RA2BE102J	RES 1KOHM 5% 1/8W	S	AA	AA
	R 0893	VRD-RA2BE102J	RES 1KOHM 5% 1/8W	S	AA	AA
	R 0894	VRD-RA2BE102J	RES 1KOHM 5% 1/8W	S	AA	AA
	R 0895	VRD-RA2BE471J	RES 470 OHM 5% 1/8W	S	AA	AA
	R 0896	VRD-RA2BE471J	RES 470 OHM 5% 1/8W	S	AA	AA
	R 0899	VRD-RA2BE471J	RES 470 OHM 5% 1/8W	S	AA	AA
			MISCELLANEOUS PARTS			
⚠	SC 0882	QSOCV0931CEZZ	CRT SOCKET HPS0521-013404-A HOSHIDEN	S	AA	AF
	P 0851	QPLGN0441CEZZ	PLUG 4PIN	S	AA	AA
	P 0882	QPLGN0541CEZZ	PLUG	S	AA	AA
	P 0883	QTIPM0017CEFM	TIP	S	AA	AA
			MISCELLANEOUS PARTS			
	SP 0301	VSP9050PB33WA	SPEAKER 509SF32C001MA MISAWA	S	AA	AK
⚠		QACCZ2049BMSA	AC CORD	S	AE	AK
		RRMCG1060BMSA	R/C 37DT25S	S	AM	AU
		UBATU0247AJZZ	BATTERY R6(X2)	S	AE	AH
		QEARC0009BMZZ	C.EARTH ELECTROMONTAJES	S	AA	AF

	REF No.	PARTS	DESCRIPTION	*	SN CODE	EX CODE
		QCNW-5971CEZZ	WIRE (SP)	S	AA	AC
		XTASB40P20000	AV SCREWS	S	AA	AC
			CABINET PARTS FOR 21HT15S(DE/IT/ES)			
	1	CCABA1352BMV0	CABINET SET 21HT15S	S	AA	BF
	1.1	HBDGB3508BMSB	SHARP BADGE	S	AC	AG
	1.2	HDECQ0069BMSA	DECORATION POWER	S	--	--
	1.3	JBTN-1082BMSA	UP/DOWN BUTTON	S	--	--
	1.4	JBTN-1081BMSA	POWER BUTTON	S	--	--
⚠	2	GCABB1129BMKA	REAR CABINET	S	AA	BA
			CABINET PARTS FOR 21HT15S(DES/ITS/ESS)			
	1	CCABA1368BMV0	CABINET SET 21HT15S	S	AA	BF
	1.1	HBDGB3508BMSB	SHARP BADGE	S	AC	AG
	1.2	HDECQ0069BMSA	DECORATION POWER	S	--	--
	1.3	JBTN-1082BMSB	UP/DOWN BUTTON	S	--	--
	1.4	JBTN-1081BMSA	POWER BUTTON	S	--	--
⚠	2	GCABB1129BMKA	REAR CABINET	S	AA	BA
			OWNERS MANUAL			
		TINS-7105BMN0	OWNERS MANUAL 21HT15SDE / SDES	S	AA	AP
		TINS-7104BMN0	OWNERS MANUAL 21HT15SES / SESS	S	--	--
		TINS-7100BMN0	OWNERS MANUAL 21HT15SIT / ITS	S	--	--





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